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ABSTRACT

The project described consisted of a field experiment in the delivery of a social service by means of a commercially-operated cable television system. A five-program series was developed and produced which provided foster-parent training leading to the licensing of prospective foster parents. Some 64 volunteers began the training program. Half the participants were asked to watch the training programs in their own homes; the remainder were asked to assemble in small groups in "host homes" for viewing purposes. Based upon the field test, a series of alternative scenarios for continued use of such delivery systems are described. Cost analyses for each together with some policy implications are presented. (Author/DGC)

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SOCIAL SERVICE DELIVERY VIA CABLE TELEVISION:

FOSTER PARENT TRAINING

A Field Experiment, Cost Analysis, Network Design, Implementation Alternatives and Related Policy Issues

By

Thomas F. Baldwin
Bradley S. Greenberg
Sanford C. Lenchner

December 1974

Final Report Submitted to the National Science Foundation
Grant Number GI 39018

Colleges of Communication Arts and Engineering
Michigan State University
East Lansing, Michigan

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SECTION I

A FIELD EXPERIMENT IN SOCIAL SERVICE DELIVERY VIA CABLE TELEVISION

by Bradley S. Greenberg, Thomas F. Baldwin
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September, 1974

NSF-RANN Grant Number GI 39018

Michigan State University
East Lansing, Michigan

EXECUTIVE SUMMARY

This project consisted of a field experiment in the delivery of a social service by means of a commercially-operated cable television system.

A five-program series was developed and produced which provided foster-parent training, leading to the licensing of prospective foster parents. Each program in the series was broadcast at three time periods each week, and the set of programs was shown over a five-week period.

Prospective foster parents were identified and recruited by the appropriate social service agencies, and 64 volunteers began the training program. Of this group, 56 participated in both the before and after phases of the experiment.

Two experimental viewing conditions were created. Half the participants were asked to watch the training programs in their own homes; the remainder were asked to assemble in small groups in three 'host homes', for viewing purposes. This latter condition provided an opportunity for interaction among the particpants over the training materials.

The major results of this experiment are as follows:

1. Viewing was voluntary. Participants in individual homes did the same amount of viewing, 2-3 programs of the 5 in the series, as viewers assembling in small groups. Twenty-one of the participants watched none of the programs, and 23 watched either four or five of them.

2. Initial interest in becoming foster parents was very high in this group, and this level of interest was maintained throughout the five weeks. Level of interest at the end of the training period was significantly correlated with number of programs seen.

3. Anxiety about becoming a foster parent was quite high at the beginning of the training period. By the end of the training period, anxiety had been reduced dramatically, but the end level of anxiety was not related to program watching.

4. Cognitive knowledge increased significantly during the training period and the amount of knowledge was related to the number of training programs viewed.

5. Affective knowledge increased very little during the training period and was unrelated to program viewing.

6. The participants' judgments of the credibility of the program trainers -- their expertness, their pleasantness, and their dynamism -- were all positively related to the number of programs seen.

7. The participants' perceptions of the convenience of the training context -- televison, distractions, times -- were not different for those viewing in their own homes or the homes of others. Convenience was positively related to number of programs viewed.

8. Overall, the impact of the delivery system was no different for those engaged in individual or group viewing.

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INTRODUCTION

The Michigan State University Telecommunication Policy Research Planning project has three interdependent phases: (1) The selection and delivery of a social service via cable TV, and an assessment of its human impact; (2) simulation modeling to explore the consequences of alternative policies on the cost-effectiveness of cable-delivered public services, and (3) the presentation of public policy questions arising from the studies.

This report presents the design and execution of the first of these phases. It emphasizes the empirical assessment of the impact of a cable-delivered social service on those people who received the service.

The initial phase of the experiment was the selection of an appropriate social service. In consultation with Michigan Department of Social Service administrators, services were screened on the basis of social need, department needs, potential cost-effectiveness and applicability to the television medium. It was believed that it would be essential to deliver a service people would be highly motivated to receive, in competition with other television attractions. It was also hoped that there could be a concrete reward for participation. The final choice of foster parent training seemed to meet all criteria.

The State of Michigan is attempting to place neglected, problem or delinquent children in foster homes rather than institutions. Good foster homes can provide a warm and wholesome temporary shelter for such children, permitting their development under near-normal conditions.

Unfortunately, many foster parents are unprepared for the task. Often the result of unpreparedness is an upsetting experience for both the child and the foster family. Furthe more, the social service agencies are burdened with the constant administrative problem of replacing unsuccessful foster parents. The turnover of foster parents in Michigan is very high.

The need to screen and prepare larger numbers of foster parents for more permanent service is recognized. To do so efficiently, under limited funds and small staff, has been an obstacle. In Michigan, the responsibility belongs to the social worker who places the child. In a series of one-to-one sessions the worker is to train the foster parent and judge fitness for licensing. Since the social workers carry many other responsibilities and have varying levels of ability and interest in the training function, the training process may be neglected or inadequate.

Cable television delivery of training programs may provide a solution to some of the problems. Highly-developed live or videotaped presentations by specialists and experienced foster parents may be cablecast to the homes of prospective foster parents. Initially, prospective foster parents have a great deal of anxiety about the role. The opportunity to assess themselves against full information about the difficulties, responsibilities and rewards of foster parenting, offers a basis for self-evaluation.

Further, the training program can become a part of the state evaluation for licensing. This then would constitute a concrete reward for participation.

A new foster parent training program had been conceived and planned for classroom presentation in November and December of 1973 at Delta

College, located between Bay City and Saginaw, Michigan in Region 5 of the Michigan Department of Social Services. Participants, 24 families, met four times for talks by specialists. Each talk was followed by group discussion sessions among prospective foster parents, natural parents, foster children and a social worker.

The Delta College program formed the basis of a television series for cable. The discussion sessions were videotaped as they occurred. One of two discussion groups met in the television studio and the other was recorded with portable television equipment in a classroom. Because the Delta studios were not large enough to accommodate all participants, specialists, who initiated each of the sessions with a talk, were brought back to Delta or to Michigan State University to be recorded. The leader of the Delta College program came to Michigan State to record introductions, transitions and closings.

All program content decisions were made by planners from the Region 5 office, sponsoring social service agencies, the county foster parents association and the subject matter specialists who were selected for the Delta College sessions. All the discussion session tapes were viewed by Department of Social Service personnel for selection of the most informative and interesting segments. These segments were then aggregated with the instructional talk with which they were most closely related.

Finally, all the taped materials were assembled into five programs, each with the following format: (1) introduction of the speaker with the main points to be covered, (2) speaker, (3) introduction of the discussion segments and main points, (4) discussion segments, and (5) closing. The programs, all dubbed to 3/4 inch cassettes, averaged 90 minutes in length.

A general description of each program appears below. A more com-

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plete summary is in Appendix A.

Program 1 - An introduction to foster parenting with an attempt to raise some of the problems, destroy some of the myths and outline the rewards. Relationships between foster parents and natural parents. Relationship between foster families and foster children.

Program 2 - Foster parents are discussed as substitutes for parents who have been found negligent by the courts. Information about the social worker's role.

Program 3 - The legal statutes that apply to foster care, including: physical treatment of the child, medical responsibility, custody of the child and liability for acts of the child.

Program 4 - Primarily devoted to the stages of development of the child and the effects of separating the child from the natural parents. The immediate reaction of the child to separation from parents.

Program 5 - Focused on the teen-ager with topics such as sexual maturation, sex attitudes, moral and emotional growth, and self-attitudes.

The television program design was a relatively direct adaptation of the original Delta College series. Time, funding and the arrangement with the speakers did not permit extensive added development of the materials to take full advantage of the medium. The talks were essentially televised lectures. However, in one program there was a studio audience. Some of the speakers used props and visual aids. A short film was included in the first program.

Despite the limited "production for television", use was made of the established instructional television techniques of providing intro-

ductory material to prepare the viewer for the main points and closings to review those points. This was done by the moderator and incorporated in the tapes.

The discussion segments were included to provide for the television viewer contact and identification with the major participants in the foster care situation - natural parents, foster parents, foster children and social workers. It was hoped that the prospective foster parents in the program discussion groups would ask many of the questions and raise some of the issues and concerns of the prospective foster parents in the television audience. A description of the program series production process is in Appendix B.

Participants

Through the months of December 1973 and January and February 1974, prospective foster parents were recruited for the cable television delivery of the programs. Gerity Cablevision of Bay City and Midland agreed to provide channel time and playback for the programs and to connect any household passed by cable, at no cost, during the experimental period. For the convenience of viewers each program ran three times - 9:30 a.m. Monday, and 8 p.m. Tuesday and Thursday, one program per week March 18 through April 18.

It was hoped to recruit a sufficient number of participants from Bay City and Midland since the cable system in Saginaw was still under construction. This was not possible, so the Saginaw participants traveled to Midland to view as guests in homes there. A total of 64 prospective foster parents were recruited and enrolled.

Principal demographic characteristics of participants were as follows:

25 men and 31 women

48 married adults and 7 single ones

12 had less than a high school education, 22 a high school diploma, 19 had some or all of a college degree

14 had already had foster children in their home and 42 had not

18 were childless, and the remainder had from 1-7 children of their own

13 had yearly family incomes below $10,000, 33 from $10,000 to $15,000, and 10 above $15,000

One-third of the participants were in their 20s, about 40 per cent were in their 30s, and the remainder were at least in their 40s.

Experimental Treatments

Two viewing conditions were established for this delivery system. In one viewing condition, participants were assigned to watch the programs in their own homes, having available any of the three alternative viewing times for their selection. In this condition, then, viewing was primarily individual in character, save for whatever other family members might watch.

In the second viewing condition, arrangements were made for three participants to act as "host homes." Small groups of approximately eight people were assigned to each of these host homes. Ideally, the assignments would have been completely random, but the lack of availability of cable equipment in Saginaw required that the Saginaw participants constitute the primary core of guests going to host homes. We do not know to what extent this may have biased the experimental results

The rationale for these two conditions was the assumption that viewing in small groups of interested participants would serve a mutually

reinforcing and interactive function. It was anticipated they would serve to assist each other with the material, with their anxieties, etc. In contrast, isolated viewing was expected to yield less impact on the dependent behaviors assessed.

The original design of this experiment anticipated two other experimental treatments, neither of which became possible as the project progressed. In one treatment, there would have been the standard, non-cable, training program for participants in a classroom setting. The fourth treatment would have consisted of a two-way interactional condition. The latter was precluded because equipment was not available, and the cable system design was not appropriate. Thus, the final experiment is a partially completed design, making two basic assessments:

(a) behavioral and attitudinal changes in the participants from prior to the delivery of the social service to post-delivery behaviors; and

(b) comparisons between viewers who watched the program in individual settings with a comparable group of participants who watched in host homes.

The next section of this report, on Methods, will provide full details on all variable operationalizations. Here, it is sufficient to cite the variables, and our hypotheses regarding them, in terms of anticipated changes and differences among the viewing participants.

In terms of changes from before to after viewing the foster parent television segments, viewing was hypothesized to:

1. maintain and increase interest in becoming a foster parent;
2. reduce anxiety about becoming a foster parent;
3. increase cognitive knowledge about foster parenting; and
4. increase affective knowledge about foster parenting.

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For all these comparisons, it was further anticipated that the experimental viewing condition of viewing in small groups would add even more so to the predicted outcome, e.g., further reduce anxiety, increase knowledge.

In terms of attitudes toward the viewing conditions established, it was hypothesized that:

5. Group viewing would be valued more highly than individual home viewing;

6. Individual viewing would be considered more convenient than group viewing.

Finally, anticipating that some participants would watch more of the program segments than others, we generated a set of hypotheses related to the number of programs viewed. In this connection, we expected that:

7. Viewing would be positively related to interest;

8. Viewing would be negatively related to anxiety;

9. Viewing would be positively related to increments in cognitive knowledge;

10. Viewing would be positively related to increments in affective information gain;

11. Viewing would be positively related to the perceived credibility of the program trainers; and

12. Viewing would be positively related to the perceived convenience of the viewing conditions.

The Results Section also will present some ancillary findings, related to this main set of experimental predictions.

METHODS

Each of the five training programs was shown three times a week beginning March 18, twice in the evenings and once in the morning. A week before the first program showing, baseline information was gathered from the 64 participants on seven variables: Cognitive learning; affective learning; their anxiety, motivation, and interest in becoming foster parents; communication with others about foster parenting; and relevant demographic attributes. These variables were re-measured after the training ended.

Four sets of attitudinal items were added to the post-test instruments: Satisfaction with the training; convenience of the viewing situation; speaker qualities, evaluated on the dimensions of expertise, trustworthiness, and dynamism; and the total number of programs viewed.

Two viewing conditions were established: an individual-at-home viewing condition (N=29), and a small group viewing condition (N=27), conducted in the homes of three of the enrolled couples. The two conditions permitted a comparison of the programs' impact in group viewing where interaction would be present, against the individual home viewing situation. Most of those in group sessions did not yet have cable available in their homes, and traveled to a cabled host home.

During the period the programs were shown (ending April 18, 1974), all respondents completed a weekly questionaire used to determine attendance, and individual program evaluation. An analysis and summary of the weekly data are in Appendix C. In addition, a special questionaire was designed for dropouts. The chief purposes of the dropout questionaire were to determine reasons for dropping, and the role, if any, of the training program. All analyses in this report are based on the 56 parti-

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cipants from whom both pre-test and post-test information was collected.

Responses to the items assessed before training began were intercorrelated to determine (1) which items best represented the variable, and (2) possible dimensions of the variable. For example, items used to measure the convenience variable separated along two dimensions, convenience and inconvenience of participating in the training sessions.

These preliminary steps yielded an index of items for each variable to be analyzed.

Indices were formed, then for all behaviors and attitudes listed above. The possible range of scores for items used in the indices, and the actual range of responses, follow. Examples of questions used for each variable are included. The instrument as administered at the post-test is in Appendix D.

COGNITIVE LEARNING

Cognitive learning was measured by 22 multiple choice questions obtained from the content of the five programs. Eighteen questions had four options, the remainder, three options. The correct response to each question was scored as 1; all other responses were scored as 0. The maximum possible range of scores was 0 to 22. The actual range of scores, based on responses to the items, was 6 to 15 for the pre-test, and 7 to 20 for the post-test. Examples of the cognitive learning questions follow. The correct answers are circled.

If a child is neglected and made a temporary ward of the court, which of the following is true?

a. The foster parents have both physical possession of the child and guardianship.
(b.) The foster parents have only temporary physical possession of the child and the courts have guardianship.
c. The foster parents have only temporary physical possession of the child

and the natural parents have guardianship.

Which of the following attitudes is most critical for successful foster parents?

(a.) An attitude which says that my home is your home.
b. A couple that feels somewhat empty because they have no one else to love.
c. A couple that is independent enough to get along without help from others.

Foster children are covered by Medicaid. This means that:

a. What you spend for the child's medical and dental expenses will be reimbursed later.
b. Only the child's medical bills may be applied to the program. The child's dental expenses must be paid for by the foster parents, with later reimbursement.
(c.) All dental, medical and optical bills must be paid through using the Medicaid card.

If a teen-ager comes to you for advice, what might your attitude be?

a. "If I were you, I'd do this."
b. "Do whatever you like."
c. "Don't let anything bother you, it will all work out."
(d.) "I might try this, but I don't know whether it is right for you."

The complete set of items with correct options is in Appendix E.

AFFECTIVE LEARNING

The 12 affective learning items were measured by five point scales ranging from strongly agree to strongly disagree. The most desired responses were scored as a 2, while the not certain response was scored as a 1. All other responses were scored as 0. The possible range then was from 0 to 24, while the actual range was from 4 to 18, for the pre-test, and 7 to 23 for the post-test. The correctness of the responses was designated by those responsible for the training program. Examples of the affective learning questions were:

If a foster child runs away from a foster home, that child should be punished.

		1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

A foster child should be grateful for the opportunity to live in another home.

		1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

A foster child who has been sexually abused will be a bad influence on your own children because the child "knows too much."

		1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

Foster children who make-up lies about their natural families must be corrected.

		1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

The items and desired responses appear in Appendix F.

ANXIETY

The 11 anxiety items were measured by five point scales ranging from strongly agree to strongly disagree. The desired response was scored as a 1 (strongly disagree) in succeeding order to 5 (strongly agree). The range then was from 11 to 55; the actual range based on responses was from 26 to 54 for the pre-test, and from 11 to 47 for the post-test. Examples of the anxiety questions were:

I worry whether my foster child will like me.

5				1
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

I am worried about meeting my foster child for the first time.

5				1
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

I worry about having a foster child in my home.

5				1
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

I worry whether I will be a good foster parent.

5				1
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

MOTIVATION

Two sets of items were used to measure motivation. The first set was nine questions responded to by four options. For each reason given for wanting to be a foster parent, the respondents' choices were:

This is definitely one of my reasons.
This is probably one of my reasons.
This is probably not one of my reasons.
This is definitely not one of my reasons.

Each question was scored from 1 to 4, with 4 being assigned to the response: "This is definitely one of my reasons", the score 3 being assigned to: "This is probably one of my reasons," and so forth. These nine items were:

I want to become a better person.

I want to share the things I have with a child who needs a home.

I want to help a child that no one else will help.

I want to do something worthwhile with the extra time I have.

I want to share my love with a child who needs a home.

I want to have a child around the house to care for.

My spouse wants to take care of a child.

According to my religious beliefs, I should help people.

I want to be worth something to another human being.

Five of the reasons inter-correlated significantly with each other and were combined into a single index which we have labeled a self-fulfillment dimension. Anyone who professed one of these tended to have the others as well.

I want to become a better person.

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I want to do something worthwhile with the extra time I have.

I want to be worth something to another human being.

According to my religious beliefs, I should help people.

I want to have a child around the house to care for.

Two others of the original items also inter-correlated highly and were summed into a sharing dimension. They were:

I want to share my love with a child who needs a home.

My spouse wants to take care of a child.

The second set of motivation items used exactly the same nine reasons as above, but the respondents were asked to rank order each reason. Respondents were asked to determine which reason was most important for wanting to become a foster parent, and place a 1 next to that reason; a 2 next to the second most important reason, and so forth. Each of the nine reasons then was ranked from 1 to 9.

Following are the frequencies for those items ranked number 1 and number 2 by the respondents, and the overall average rank ordering for those items at the first testing.

	Overall Ranking	Frequencies Rank #1	Rank #2
I want to become a better person.	4	2	4
I want to share things I have with a child who needs a home.	2	16	18
I want to help a child that no one else will help.	3	8	14
I want to do something worthwhile with the extra time I have.	7	0	2
I want to share my love with a child who needs a home.	1	23	12
I want to have a child around the house to care for.	6	0	3
My spouse wants to take care of a child.	9	1	0
According to my religious beliefs, I should help people.	8	0	2
I want to be worth something to another human being.	5	4	0
		N = 54	55

Of these reasons, the one most frequently ranked first, was "I want to share my love with a child who needs a home." This reason was ranked first by 23 of 56 respondents. The reason receiving the next highest ranking was "I want to share the things I have with a child who needs a home," ranked first by 16 respondents.

INTEREST

The three interest items were measured on a five-point Likert scale of the following form:

At this time, how interested are you in becoming a foster parent?

5 very interested
4 quite interested
3 somewhat interested
2 not very interested
1 not interested at all

At this time, how certain are you that you will want to be a foster parent?

5 very certain
4 quite certain
3 somewhat certain
2 not very certain
1 not certain at all

In general, do you think you want to be a foster parent?

5 definitely yes
4 probably yes
3 uncertain
2 probably not
1 definitely not

Each of the most positive responses (very interested, very certain, and definitely yes) was scored as a 5, in succeeding order to 1 (not interested at all, not certain at all, and definitely not). The possible range on this three item index was from 3 to 15, and the actual range was 6 to 15 for the pre-test, and 7 to 15 for the post-test.

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COMMUNICATION WITH OTHERS ABOUT FOSTER PARENTING

The items on communication with others sought to determine the sources and amount of information about foster care that may have contributed to prior knowledge about foster parenting. Twelve questions were asked, with response scales ranging from 0 to 15 or more, which were estimates of the number of people, hours, and news items encountered in discussion of foster care. These items were then grouped into two special clusters for more directed analyses. The first was comprised solely of the item: "How many different people did you talk to about foster care in the month of February?" For the post-test, April was substituted for February. The maximum possible range was 0 to 15, and the actual range was 0 to 15 for the pre-test and also the post-test. For the pre-test, the modal response was one person talked to (N=12) and for the post-test, the modal response was 8 persons talked to (N=8). These participants had talked with some 200 people in February and 300 in April.

The second set of items dealt with media sources of information about foster care. The three items in this set were:

> How many news items or announcements about foster care did you hear on the radio during February?
>
> How many stories, news items or announcements about foster care did you hear on television during February?
>
> How many stories about foster care did you read in the newspaper during February?

The maximum possible range for each item was 0 to 15. The actual range for the radio item was 0 to 15 in February, and 0 to 12 in April. The modal response was no radio items heard in February (N=36), or in April (N=23).

For television items, the actual range was 0 to 10 for the pre-test and for the post-test. The modal response was 0 or no television items heard in February and in April.

For newspaper stories, the actual range was 0 to 6 for the pre-test and for the post-test. The modal response was 0 in February (N=35) and 0 in April (N=15).

Cumulatively, the number of respondents reporting hearing news items on the radio decreased from 20 to 19 between the pre-test and the post-test; the number reporting television items increased from 21 to 28, and the number reporting reading newspaper stories similarly increased from 21 to 28.

The remaining variables were measured only once, after the five programs had been broadcast.

SATISFACTION WITH VIEWING CONDITION

Five questions were used to measure satisfaction with the viewing situation. The questions differed only in terms of whether they were home or group directed. For example, for individual home viewers the first question read: "If I could have talked with others immediately after the show, it would have reduced some of my fears about being a foster parent," while for group viewers the question was: "Talking with others immediately after the show reduced some of my fears about being a foster parent." Responses of maximum preference for a group situation were scored as a 5, while lesser preferences were scored 1-4.

One item yielded a low correlation with the other five, was dropped from further analysis. This item was "Talking about the program with other foster parents right afterwards was worthwhile." The four remaining items summed into an index were:

> If I could have talked with others immediately after the show, it would have reduced some of my fears about being a foster parent.
>
> A social worker discussing the program alone with me would not have been as helpful as discussing the program with a group of other prospective foster parents.

I would have remembered the main points better if I could have talked to others about them right after the program.

I preferred watching the program in my home to watching them with a group.

CONVENIENCE

The nine convenience questions were reduced to six, on the basis of preliminary analysis. The remaining six items separated along two dimensions, based on strong intercorrelations among the items. These dimensions were labeled the convenience and inconvenience of the training sessions. The two questions that comprised the convenience dimension or index, were:

The training sessions were at convenient times.

Television was a good way to get this kind of information.

The questions used in the inconvenience index were:

The training sessions were too long.

I usually got tired during the sessions.

There were other things I wanted to do when the training sessions were on.

Usually I had to force myself to pay attention during the sessions.

For each item, the response categories were: "Strongly Agree, Agree, Not Certain, Disagree and Strongly Disagree." The possible range for the convenience index was 2 to 10, and the actual range was 2 to 10. The possible range for the inconvenience index was 4 to 20, with the actual range 4 to 19.

EXPERTISE, TRUSTWORTHINESS, DYNAMISM

The respondents rated the speakers on five-point scales bounded by bi-polar adjectives. The most positive responses were scored as a 5, and

the most negative as 1.

The ratings on any one scale were correlated with those on each of the other scales, and provided an index of the degree to which various bi-polar scales clustered together. From this analysis, the scales clustered along three dimensions: expertise or authority, trustworthiness, and dynamism. Three scales comprised the expertise dimension, and four scales comprised each of the other two dimensions. The items in each scale were:

Expertise or Authority

In general, the different speakers in the sessions were:

	Very	Somewhat	Not Certain	Somewhat	Very	
reliable:	_____	_____	_____	_____	_____	unreliable
qualified:	_____	_____	_____	_____	_____	unqualified
valuable:	_____	_____	_____	_____	_____	worthless

Trustworthiness

honest:	_____	_____	_____	_____	_____	dishonest
pleasant:	_____	_____	_____	_____	_____	unpleasant
unfriendly:	_____	_____	_____	_____	_____	friendly
selfish:	_____	_____	_____	_____	_____	unselfish

Dynamism

aggressive:	_____	_____	_____	_____	_____	meek
active:	_____	_____	_____	_____	_____	passive
timid:	_____	_____	_____	_____	_____	bold
introverted:	_____	_____	_____	_____	_____	extroverted

NUMBER OF PROGRAMS VIEWED

We sought to determine how many of the programs were viewed, and how

many times they were viewed. If the respondent did not see a program, that response was scored as 0; if the respondent saw a program once or more, those responses were scored as a 1, inasmuch as very few watched the same program more than once. The maximum possible range for these responses, then, was 0 to 5 and the actual range was also 0 to 5. The question format follows, with the frequency of responses for each set of answers:

> We'd like to know which programs you watched. Below is a brief reminder of what each program was about and then a few questions about your viewing.
>
> Program 1: Phyllis Cornell
>
> This program talked about the relationships between the natural parents and the foster parents and the relationship between the foster family and the foster child. This program also discussed what kinds of obligations there are between the foster family and the social services.
>
> How many times did you see this show?
>
> 27 I didn't get a chance to see this one
> _____ One time
> 29= _____ Two times
> _____ Three times
>
> Program 2: Byron Hosmer, Social Worker
>
> In this program, foster parents were discussed as substitutes for a family which has often been found negligent by the courts. Information about the social worker's job also was presented.
>
> How many times did you see this show?
>
> 27 I didn't get a chance to see this one
> _____ One time
> 29= _____ Two times
> _____ Three times
>
> Program 3: Faye Harrison, Lawyer
>
> This program examined the legal statutes that apply to foster care. The topics included physical treatment of the child, medical responsibility, custody of the child and liability for acts of the child.

How many times did you see this show?

__32__ I didn't get a chance to see this one
_____ One time
24 → _____ Two times
_____ Three times

Program 4: Harold Sommerschield, Psychologist

This program was primarily interested in the stages of development of the child and the effects of separating the child from his natural parents. The immediate reaction of the child to separation from parents was discussed.

How many times did you see this show?

__34__ I didn't get a chance to see this one
_____ One time
22 → _____ Two times
_____ Three times

Program 5: Martin Shindeling, Psychologist

This program focused on the teenager. Topics such as sexual maturation, sex attitudes, moral and emotional growth, and self-attitudes were discussed.

How many times did you see this show?

__34__ I didn't get a chance to see this one
_____ One time
22 → _____ Two times
_____ Three times

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RESULTS

In this section, we will present the basic set of findings. These encompass two sets of measures. One set assessed changes in the participants from before the televised foster care program to after the program series had ended. The second set assessed their post-viewing responses to the program series. We will make comparisons between those who viewed in small groups and those who viewed in individual home settings. Our final analysis will be to determine to what extent behavioral changes or attitudes were related to the number of programs viewed.

CHANGE BEHAVIORS

Five of our measures were assessed before and after the program series. These were interest in becoming a foster parent, anxiety about becoming a foster parent, motivations for becoming a foster parent, and cognitive and affective knowledge about foster parenting.

As an overall result, the experimental assignment to viewing in individual homes or in small groups yielded no differences on any of these behaviors. There was nothing stimulated nor inhibited by the individual versus group viewing sessions. Therefore, most of the results we will report deal primarily with changes from the first to the second testing session. Table 1 provides summary data for this section.

Interest in Becoming a Foster Parent

The general level of interest was very high among these participants as they entered into the telecommunication situation. The average responses were close to 13 on a 15 point interest scale. At the end of the viewing sessions, the high interest level was maintained but it had not

increased any further. The initial high interest apparently produced a ceiling effect which enabled only continuing reinforcement of that level of interest during the training session. However, this may be an important result in itself. The training sessions did not by any means diminish interest in becoming a foster parent. They maintained interest.

There was a significant correlation (.24) between the number of programs seen in the five program series and interest. This correlation offers some substantiation for the premise that watching the programs facilitated the maintenance of interest.

We divided the program participants into three categories on the basis of the number of programs they saw. In actuality, 21 of the 56 people who completed this program reported that they saw none of the shows. Twenty others reported that they saw from one to four of the programs, and 15 reported seeing all five. Interest was below average (11.71) in that group which saw none of the programs and was at a higher level among those in either of the other two viewing categories.

Another manifestation of interest in becoming a foster parent would be in terms of communication behavior with others about this activity. We assessed the extent to which the participants talked with others about foster parenting in the time period preceeding and during the program presentation on cable. We also assessed the extent to which the participants read about foster parenting in the newspaper, saw news items on television or heard news items on the radio. Interest in becoming a foster parent was very significantly correlated (.42) with talking with others -- both professionals and non-professionals -- about becoming a foster parent. Interest was also correlated with reading news items in the newspaper and seeing items on television which dealt with foster parenting, but was not correlated with hearing anything on radio.

Table 1

Change Behaviors Among Individual and Group Viewers

	Viewing Situation				Correlation with Number of Programs Seen
	Individual		Group		
	T_1	T_2	T_1	T_2	
1. Interest	13.2	12.9	12.2	12.4	(.24)
2. Anxiety	39.5	28.5	35.5	24.7	(.04)
3. Cognitive Learning	12.7	13.7	11.7	14.3	(.36)
4. Affective Learning	14.0	14.8	14.8	15.8	(-.01)
5. Self-fulfillment Reasons	14.6	14.1	14.4	13.4	(.23)
6. Sharing Reasons	6.0	5.6	5.9	6.1	(.12)

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Anxiety about Becoming a Foster Parent

We measured the degree of concern expressed by each individual during the time period preceding the beginning of the television series and at the conclusion of the television series. At the first time period, all participants had above average anxiety about becoming a foster parent. The group mean was above the midpoint on our index of anxiety. There was a dramatic shift downward in anxiety from the first to second measurement. On the average, the decrease in anxiety encompassed more than one-fourth of the possible movement on the index. Whereas all participants were on the average somewhat above the scale's midpoint at the first testing session, all were on the average far below the midpoint at the second testing session. During these weeks, anxiety about becoming a foster parent reduced dramatically.

There was, however, no correlation between the reduction in anxiety and the number of programs seen. That is, anxiety was lessened but not apparently as a function of program viewing. We had anticipated finding the programs to be the basis for reducing anxiety. These data do not verify that. We had also anticiapted that talking with others would be correlated with anxiety reduction and it was not. We did determine that anxiety was positively related (.29) to reading newspaper items about foster parenting -- at the before-training time period. By the end of the training sessions, however, there was no relationship between these two variables. The overall decrement in anxiety may have eliminated the import of this earlier source of information.

The conclusion is that the reduction in anxiety was due to some unknown or some unanalyzed factors. We will be doing additional analyses with these data to try to determine some of the basis for anxiety reduc-

tion which did take place.

Cognitive Information Gain

We administered the same 22 item test at both interview sessions. Items for the cognitive knowledge index were derived from all shows. No show had fewer than three entries in the knowledge index and no program had more than six. Thus, it was possible for there to be incremental learning of a moderate extent on each of the programs.

At the first testing, the average number of items correct was 12 and at the second, it was 14. This is a statistically significant increment in knowledge among the participants ($p < .001$). One may ask to what extent it was a socially significant result if a toal of five programs yielded a measured increment of only two factually correct ideas. Of course, the 22 cognitive knowledge items tested only a sample of the critical information which was available to be learned in the five programs. If one projects from this learning level (22 total items, 12 already known, and 2 of the remaining 10 learned), then there was a relative gain in knowledge of approximately 20 per cent of the new information in the programs.

Clearly, those who watched more programs learned more than those who watched fewer programs. The correlation between number of programs seen and cognitive information was .36, which is certainly as anticipated.

Turning to sub-group comparisons, those who watched no programs did not increase knowledge at all between time one and time two. Those who watched from one to four programs increased about two items and those who watched all five increased about three items on this index. It was the programs which clearly contributed to the increased level of information among the participants.

Cognitive knowledge was uncorrelated with talking to others about foster parenting at either time period.

Knowledge was gained by the viewers, but there remained a substantial gap between the level of learning they achieved and the level of information gain they could have obtained.

We also analyzed the cognitive learning which occurred for each of the programs, separately for viewers and non-viewers. The time two knowledge scores of the viewers were persistently higher for each one of the five shows. There was some trend for the learning differences between viewers and non-viewers to increase with each successive show. That is, viewers of the fifth program were more disparate from non-viewers of that show than viewers of the third or fourth program from non-viewers of those programs, and the latter viewers were more consistent learners than viewers of the first or second show. This result probably interacts with other variables including interest such that the viewers of the final shows were those who were most receptive to whatever information was being presented.

The interpretation of these cognitive results is made a bit more ambiguous by our analysis of program by program change scores. That is, for each program we looked at the knowledge score of those items from that program for the viewers and non-viewers and compared their gain at the time two testing. For one thing, it is apparent that those people who chose to view any individual program were already more knowledgeable than those people who chose not to view that program. That is, knowledge contributed to viewing in perhaps much the same fashion that viewing contributed to increase knowledge by the second interview session.

This suggests that we are dealing with a more complex set of results than might otherwise have been perceived from the initial presentation

of findings in this section. By the time of the third, fourth and fifth shows when the participants already began to establish themselves in terms of interest, it was here that the viewers showed the largest gains in knowledge, or more precisely the largest changes in knowledge gain from the pre-viewing period.

It is important to summarize some of these latter findings. For one, more knowledge appeared to accrue from the programs which were presented later in the sequence. More knowledge change or gain appeared to accrue from those same programs. At this point, it is not possible to say whether this was a function of the content presented in the later shows, that is, there may have been more new information in programs three, four, and five, or whether there was some sequential learning effect brought about by those who elected to continue viewing the later programs. These alternative explanations should be tested in subsequent research.

A final analysis of the cognitive items was more for purposes of the social services department involved. For each of the 22 items we looked at the number of people who had it wrong at time 1 and correct at time 2. This information which is included in Appendix E identifies those specific content areas which were best learned. There were some dramatic shifts in learning primarily where many individuals were incorrect at time 1 and learned the information from the programs.

On a program by program basis, the item learning scores were as follows. A + score indicates the net increase in the number of people who had the item correct at time 2, a - score indicates a net decrease, and 0 that the number remained constant:

Program 1 -- Four cognitive items were used, with net results of +7, +4, -5, and -3.

Program 2 -- Four items were used, with results of +3, +5, 0 and -2.

Program 3 -- Six items were used, with results of +4, +4, +8, +14, +19, and -1.

Program 4 -- Three items, with results of +8, +14, and -2.

Program 5 -- Five items, with results of +5, +7, +13, 0, and -3.

Interestingly, each program contained at least one information area in which negative learning occurred. The third program -- on legal aspects of foster parenting -- yielded maximum gain. The first two programs netted minimum gain and/or the items were of special difficulty. This item information should assist the social service agency in identifying areas and issues of learning difficulty.

Affective Learning

This information measure dealt with parenting values which the social services people believe to be useful values for the individuals involved. These 12 items were scored as either wrong (0), partly correct (1), and primarily correct (2), and the social service agency provided the scoring key. The original scores could range from 0-24. At the first testing session, the participants' score average was 14 points. Slightly more than half of the values espoused were already advocated by the program participants. After seeing some sub-set of five programs, the affective knowledge index showed a one unit increment to an average score of 15. This is a statistically significant increase ($p < .05$) from before to after the programs.

Unlike cognitive knowledge, affective learning was completely unrelated to program viewing. That is, the correlation between amount of viewing and the affective learning score at time 2 was nil. Affective learning which did take place could not be traced to the watching of programs.

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In our program by program analysis of affective learning, we found viewers scoring better than non-viewers on some programs and worse than non-viewers on other programs. The main points are that the pattern of learning was inconsistent on a program by program basis and the amount of learning was trivial in any show. Those factors obviously contribute to the non-correlation with viewing. When we looked at the changes in individual items, we determined that on 4 of the 12 items five or more people moved from the completely incorrect category to one of the more correct categories. On three items, there was a shift by five or more people from a correct category into a completely incorrect category. The items and distribution of scores are in Appendix F.

Motivations for Becoming a Foster Parent

The motivation items were not items for which we had a priori predictions, but were developed and included largely because the sponsoring social service agency was interested in the reasons expressed by the program participants for their interest in foster parenting. These motivations were dealt with in two ways. For one, two indices were created on the basis of correlational results reported in the methods section. For a second, the indivdual motivational statements were analyzed in terms of their relative preference by the participants.

One of the motivational factors underlying reasons for becoming or wishing to become a foster parent was labeled self-fulfillment, exemplified by such items as, "I want to help a child that no one else will help," "I want to have a child around the house to care for," and "I want to be worth something to another human being." At the first testing session, the group average on this set of five items was 14.5, of a possible range from 5-20, with the higher score representing the higher expression of

these motivations. At time 2, it had been reduced to 13.7, which was a significant drop in the advocacy of this set of reasons.

This shift was associated with program viewing. That is, the number of programs watched and the scores on this index at the second testing were significantly correlated (.23, $p < .05$), whereas no such correlation existed before the programs were broadcast. For some reasons, this alteration in motivations was partly attributable to the content viewed. It was indeed the intent of the training series to change motivation; that is, to provide a more accurate picture of the rewards and difficulties of foster parenting thereby reducing the naivete of prior motivations.

The second factor of motivations identified consisted of two sharing items, "I want to share my love with a child that needs a home," and "My spouse wants to take care of a child." There was no change in this as a motivational basis between times one and two, nor was there any relationship between program viewing and the expression of this reason. The original and later level of expression of this motivation yielded an average score of 6, with the possible range from 2-8.

If we turn to the nine individual reasons and their overall priority for the participants, we find no significant shifts from before to after the viewing of the programs, and no consistent relationships between viewing and those reasons. It would appear useful here to repeat from the methods section the descriptive rank ordering of these items, in terms of their priority for these potential foster parents.

The two reasons which stood out with consistently higher rankings were:

"I want to share the things I have with a child who needs a home."

"I want to share my love with a child who needs a home."

A next reason which stood closer to these two than to the ones which followed it was:

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"I want to help a child that no one else will help."

There followed then, four items which showed consistency between time 1 and time 2 and which probably should be grouped in terms of their similar rankings to each other. They were:

"I want to be worth something to another human being."

"I want to do something worthwhile with the extra time I have."

"I want to have a child around the house to care for."

"I want to become a better person."

Those two reasons which receive the consistently lowest rankings as reasons for wanting to become a foster parent were:

"My spouse wanted to take care of a child."

"According to my religious beliefs, I should help people."

RESPONSES TO PROGRAMS AND VIEWING SITUATION

Here, our analysis turns to those variables which were assessed only in the post-viewing situation. There were three such categories of variables. One dealt with the percieved credibility of the program speakers and lecturers. A second dealt with the viewers' perceptions of the convenience of the training sessions, e.g., the extent of distractions, the length of the sessions, the desire to do other things. The final measure in the post-viewing situation asked about the satisfaction of the viewers for their individual or group viewing situations. Results will be presented in that order, and Table 2 contains summary data.

Speaker Credibility

Three attitudes of the speakers were assessed -- the perceptions by the viewers of the speakers' expertise, their pleasantness and their dynamism. Each of these attributes was assessed by a set of scales as described in the methods section.

Again, there was no difference in assessment of the speakers by those who were in group situations versus those who were in their own home viewing situations. Therefore, the focal point of the analysis was to look at the relationship between amount of program viewing and each of these three credibility attributes.

In terms of perceived expertness -- the qualifications and the reliability of the speakers -- the correlation with amount of viewing was extraordinarily high, .53, $p < .001$.

A similar pattern existed for the other two attributes, those of safety and dynamism. For each there was a positive correlation, .26 with safety and .30 with dynamism. These latter two are not of the magnitude of the correlation between viewing and perceived expertise but the pattern of the results suggests a parallel but lesser impact.

Convenience and Inconvenience of the Training Sessions

Two measures of perceived convenience came from the original set of items. However, the results for the two sets are identical and may be treated together here. Again, there was no greater perceived inconvenience for viewers participating in a group situation than in an individual home situation. This would appear to be a non-finding, yet it suggests that no particular inconvenience was caused anyone by asking that person to go from their own home to meet with four or five other interested adults and to view some foster parenting material. There was a significant correlation between amount of viewing and each of the two convenience indices. These correlations ranged from .45 to .51, both of which are highly significant relations ($p < .003$).

Clearly, those who were willing to engage in the viewing process did not judge that they were inconvenienced in doing so. It remains difficult to know if it could have been the percieved convenience which led to the

Table 2

Time 2 Responses to Program and Situation Attributes

	Viewing Situation		Correlation with number of programs seen
	Individual	Group	
1. Speaker Credibility			
a. Expertness	12.94	13.29	(.53)
b. Pleasantness	17.50	16.42	(.26)
c. Dynamism	14.88	14.85	(.30)
2. Convenience of Situation	7.90	7.29	(.45)
3. Inconvenience of Situation	10.40	10.88	(.51)
4. Preference for Group Viewing	10.53	12.21	(.10)

viewing or if some third factor, e.g., interest, led to both perceived convenience and frequency of viewing programs. As we have suggested, more complex analyses will be undertaken with these data. Suffice to say at this point that the viewers in groups felt no more inconvenience than viewers in their own private homes, and that percieved convenience was highly related to the number of programs viewed by the participants. It is worthwhile to add that the average number of programs viewed by those who did so in group sessions was 2.2 and the average viewed by those who could watch on their own home set was 2.3. Clearly, participating in the group viewing sessions was not in any way a deterrent to actual program watching.

Preference for Individual or Companionship Viewing

Each of those who watched in a group situation was asked the extent to which being with other interested parties made that a more desirable situation for such things as reducing fears or remembering main points. Those who watched in their own homes were asked if they had had others around, would it have contributed in those same ways. The group viewers responded at a level which indicated they were somewhat uncertain just how much the group contributed to what they took away from the program. Those who watched in individual situations were more of the belief that they would have profited from having others with them in the viewing situation. The difference between the home and the group viewers in this regard approaches statistical significance ($p < .10$). It is suggestive at any rate that the experience in the group was not necessarily strongly appreciated nor depreciated, but those not given that opportunity believed that it would have been of some greater import to them. Although there was no higher level of viewing in the groups than in the individual homes,

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the correlation between viewing and satisfaction was higher in the group (.24) than in the individual situation (.09).

Viewing and Related Communication Behavior

To complete this initial set of results, we examined the relationship between the number of programs seen and other sources or potential sources of information about foster parenting. The number of programs seen was very highly correlated (.41) with the number of other people talked with about foster parenting during the time periods the programs were on. Viewing stimulated talking with others.

In a similar fashion, viewing interacted with other media exposures. The number of programs seen was positively correlated (.55) with recall of having seen news items of television that dealt with foster children and with having heard news items on the radio (.22). Thus, there would appear to be a package of interstimulated communication behaviors, largely motivated by the presentation of the training programs.

We also looked at a set of demographic characteristics to determine if certain background characteristics motivated the viewing of these training programs more so than others. Prior education was related to programs seen, with the more educated watching more of the training programs than the lesser educated. Having previously had some foster child in their home also was related to frequency of viewing.

DISCUSSION

In this section, we will discuss those aspects of this field experiment which lend themselves to subsequent research possibilities, to policy implications, and to theoretical issues.

First, let us turn to some of the findings. Most critical, it seems, may be the lack of differentiation of impact on those who watched in individual homes, from those who watched in compact group settings. This was a central thrust of the experiment. It was believed that the isolation of home viewing was less than an ideal situation for learning, for anxiety reduction or for the reinforcement of interest levels. This would especially be the case for a set of programs that were basically pedagogic in style. The small group viewing was constructed to compensate for these perceived deficiencies. Yet, the evidence assembled to this point suggests that one-way delivery of this social service was equally effective among viewers, regardless of the viewing situation. If this particular finding were replicated, it would have several strong implications. For one, viewing groups were tedious to organize and establish. It required an output of staff resources to identify host homes, to convince participants to join those viewing groups, and to do so on a continuing basis. It required group members to transport themselves, or find transportation, to the host homes. It effectively limited them to agreeing to view one of the three possible showings of each program, rather than choosing the most personally convenient. All these energy outputs were unnecessary in this experiment, inasmuch as the measured outcomes of the group viewers were not different from the people who watched in their own homes and chose a viewing time as they wished.

Further, the relative satisfaction of the viewers with their viewing conditions is related to this discussion point. Those in groups were not noticeably impressed by the circumstances of gathering together for watch-

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ing the programs. Their ratings of that viewing condition placed them at an intermediate level of satisfaction on the attitude scale used. They did not believe that it contributed particularly to their assimilation or learning of the program material -- and the objective results on learning support that perception. In contrast, the at-home viewers felt it might have been beneficial to view with others but that response may represent a 'grass-is-always-greener' phenomenon. The results also showed no differences in number of programs viewed by those in the two experimental treatments, and no differences in perceived convenience of the viewing conditions.

The suggestion then is that a far larger number of individuals could be simultaneously trained as foster parents. In fact, the number to be trained via one-way cable has perhaps only the upper boundary of what the social services staff can manage to recruit, encourage, and provide staff reinforcement and services for. The earlier felt need to provide interaction and mutual stimulation may not require collective gathering together of participants during training sessions. The technique of including a simulated interaction through the televised discussion groups may have been successful in achieving the objectives for live group interaction.

There are reservations to be imposed on even a tentative conclusion such as this. Major among these is the lack of two comparison groups in this experiment. One would have been the live training sessions themselves, with their maximum interaction potential, wherein the instructors would have an even better opportunity to respond to individual and group feedback. The second would have been the two-way, interactive television situation, in which some form of immediate response from the participant viewers could possibly have led to program content alterations. Whether

either of these latter two situations would have resulted in more post-training impact remains unknown to us, but does warrant a direct test.

It is premature to make ary firm decisions on the basis of the data collected to date. The level of evaluation of this training program is solely in terms of effects of the training on the participants. A more severe level of evaluation will be in terms of the new foster parents' performance in that capacity. If and when they become foster parents, how long do they continue? The drop-out rate for foster parents is extensive. Do these newly-licensed foster parents remain in the system at least as long as those licensed under other training programs, or under no training programs? Do they remain longer? What of the quality of foster parent care they provide? Is it at least as good, or better than other foster parents? Are the responses of the children cared for more positive? Such issues have not yet been dealt with at all, but must be.

Let us return to the data actually collected, rather than continuing to be remorseful about uncollected information. The viewing levels for the television programs were unimpressive. Here, again, are the numbers who watched from 0-5 programs:

# of programs seen	# of viewers
0	21
1	6
2	5
3	1
4	8
5	15

Half of those who agreed to voluntarily participate in this training program saw either zero shows or 1 show. They become non-participants, for all practical purposes. This is a large drop-out rate, but we have no baseline against which to compare it. Social services staff people informed the project directors that it would be useful for some prospective

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foster parents to decide that they did not want to become foster parents. This certainly occurred. Thus, the training programs served a significant secondary function. They screened out of the system those with strong initial interest, for whom the information and related program content diminished that interest. This clearly is an efficient way to do such screening, on a self-identified basis. Classically, such individuals might well have been licensed and then given two or three foster children while they decided if they really wanted to continue to become foster parents. In the present system, they could decide much earlier, saving expense and perhaps disappointment, let alone related staff energies.

The ability of this delivery system to increase knowledge in the subject matter area should cause considerable concern within the training agency. In terms of cognitive knowledge, the most avid of the viewers, those who watched all or almost all of the programs, made only a small addition to the information which they had prior to training. In terms of affective knowledge, the results were more disappointing, and whatever minor increment of knowledge occurred was independent of program viewing. Further, half of the information tested on already existed among the participants. Just why key information went unlearned is not known; no post-training debriefing sessions were created for this field experiment. Perhaps such sessions could have determined more closely the reasons for low levels of learning. Surely, if the cost of the program were evaluated solely in terms of the 20 per cent new cognitive information gained, then the costs would be high. For further development, we would suggest that an attempt be made to build into the individual training sessions some means of stimulating or facilitating learning. For example, it would be efficient and inexpensive to provide the viewers with a summary of the main points of the programs immediately after the programs, by mail. Or

to provide an outline of the program, in advance, with which the program might be viewed. The outline could cue the viewers to the central themes and ideas.

Programs, more specifically designed for television, might enhance learning. Had such a design been feasible, speakers might have been "auditioned" and selected for television, audio and visual segments might have been designed to be reinforcing, redundancy could have been introduced in the form of outline structure, key word presentations, review and summation. Audience participation might have been stimulated through questions and problems posed in the personal form, with time permitted for individual thought before possible responses were discussed.

The untried, interactive cable presentation, with a programmed learning format, might increase learning by raising attention levels and adding immediate reinforcement. In a live interactive mode, content could be adjusted to majority needs.

Alternative strategies may be considered as a means of increasing viewership. That is, the decision to create five weeks of programming was based on an intuitive judgement of an optimum program length of 90 minutes. It would be possible to re-organize the programming into longer viewing sessions, which run for three weeks, for example. This shorter training time frame might be an incentive to greater attendance or participation.

Clearly, the programs maintained interest among the participants in becoming foster parents. And the time period during which the programs were broadcast served to reduce their anxieties about the prospect of becoming a foster parent. It would seem that the programs had more of an impact on attitudes -- about foster parenting, about the training situation -- than on knowledge. Whether such attitudes contribute to more

productive productive foster parent behaviors with children remains unanswered.

Precise estimates of the actual costs of delivery of this service in this manner and estimates of costs for further experimentation in other formats are forthcoming in another report of this project. Let us conclude this discussion by itemizing the most central results.

Cable delivery of this social service:

a. maintained interest among those who received this training via television.

b. provided some increment in cognitive knowledge, but only a minor one in affective learning.

c. did not vary in impact among those who received it in their own homes, as compared to those who met in small groups for viewing.

d. was deemed credible in terms of the speakers.

e. was judged equally convenient by experimental groups of viewers.

f. was watched equally by both groups of viewers.

g. was watched little by one-half of the participants, and extensively by the other half.

AGENCY REVIEW AND RECOMMENDATIONS

Responses to the cable television training program concept and content by Region 5 staff personnel, private agencies and foster parent association members were favorable.[1] Differences of opinion were mainly over the most appropriate viewing situation and means of further implementation. It was believed desirable to have a variety of training models available to permit a choice by the public and private agencies and the trainees.

Viewing situation

Although the data do not reveal any differences in learning and attitudes between the group viewing in host homes and the private viewing situations, most of the social workers involved intuitively felt that group viewing with an active leadership role played by a trained social worker would be superior. This situation provides an opportunity to answer questions that might arise and to build confidence through social worker and peer reinforcement, presumed to be important especially among new or prospective foster parents.

On the other hand, there was a suggestion that group viewing with strangers might inhibit the kind of interaction that would occur between husband and wife viewing alone together.

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[1] This portion of the report is a summary of a meeting on October 8, 1974 with social service agency and foster parent association personnel who participated in the field experiment. The field experiment report preceeding these pages was distributed a week prior to the meeting. Persons attending were: Fred Lawless, Director, Region 5, Michigan Department of Social Services; Peggy Johnson, Saginaw County DSS; Donna Brubaker, Saginaw County DSS; Lois Bertermann, Lutheran Children's Friend's Society; Carol Randall, Midland County DSS; Hazel Woodhouse, Saginaw County Foster Parents Association; Wallace Nielsen, Bay County DSS; Chris Radimerski, Bay County DSS; Steve Lynott, Catholic Family Services, Bay City; Mary Huntley, Midland County DSS; Dorothy Lawson, Region 5, DSS; Thomas Baldwin, Sanford Lenchner, Bradley Greenberg, Michael Roloff, Michigan State University.

Suggestions for further experimentation and implementation

No attempt was made to establish a consensus on further development of the training model. A number of suggestions emerged from the discussion, all of which seemed to have merit.

1. Continue to use the videotapes, that were created for the field experiment, for new or licensed foster parents who are cable television subscribers. This can be done with small administrative effort in scheduling playback and informing prospective foster parents. The results may compare very favorably with present training on a direct social worker-to-prospective-licensee basis, which, if it is not neglected, is very costly in staff time. The procedure also can have an important incidental benefit; that of screening prospects for their sincerity of interest in foster parenting. The viewing of the television programs would be the prospective foster parents' first action on their stated intent. If the commitment is not firm enough for them to take this first step, they may eliminate themselves before any costs of processing and home inspection.

2. Playback of the tapes in group training sessions at public meeting places (e.g. schools, libraries, community centers) with before and after discussion led by a social worker and/or an experienced foster parent. The tapes would be played on relatively inexpensive playback equipment which could be shared by many users, or through a cable system which would have a drop at the meeting place.

3. Use the initial experiment report to determine the kind of information most adequately communicated by television and prepare one or two programs which might be used in group sessions or for in-home viewing by cable. The most essential information would be presented. This would reduce the time investment by the prospective foster parent to what might be

realistically expected of the widest possible pool of prospective licensees.

4. Produce a new set of materials on foster care which would start with general information and branch into specific types of foster care appropriate to the interest of the trainees and the needs of the agencies. The general program(s) would describe the needs for foster care, regularly being updated to emphasize the most critical current needs, legal and administrative information. A second level of programs would cover categories such as adult foster care, foster parenting, etc. The third level would deal with even more specific information within these categories. For example, after the general foster parenting information, special programs concerned with mentally ill, hyperactive, physically handicapped children, etc. This system would cover all the essential information, help to recruit people into the areas of greatest need and finally to provide a focused training in the most pertinent area for prescreened people. With a modular series of highly specific programs, a dual purpose could be served. In addition to the training of new foster care people, the same materials could be used for the in-service training of licensed people as they may shift from one category of care to another, e.g. from care of infants to problem adolescents. (The National Association of Foster Parents is presently lobbying nationally, and in Michigan, for mandatory in-service training.)

Several delivery systems might be appropriate for this form of training,, perhaps combining mass communication channels, cable and independent study carrels.

5. The video tape materials, once on hand for training, can also be used for orientation and training of new social workers.

INCIDENTAL POLICY ISSUES

A number of public policy issues are addressed by the studies reported herein. Those issues on which the field experiments and investigations bear directly are discussed in the context of the reports of the results in this and the next section.

In these brief paragraphs, we will outline additional policy issues that arise in association with the studies. These issues require consideration in the implementation of social service delivery via cable.

RIGHTS-OF-PERSONS POLICIES

1. Rights of social and health agency personnel.

The service agencies must make plans for dealing with the extension of employee services through new modes of delivery, e.g. rights regarding use, distribution, storage and retrieval, use beyond termination of employment, rights of revision.

Where an agency employee is the principal author of program materials, or appears in person, and that content or image is widely distributed for access by many persons, that employee has a personal interest in the material that goes beyond his or her interest in the conventional work product. When recorded material is stored over long periods of time for reuse, the personal interest is heightened.

Policy statements, or contracts should be prepared to protect the individual interest and the sponsoring agency. Adequate precedent lies in the documents that have been prepared outlining faculty rights and responsibilities in instructional media.[1]

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[1] An example: "Faculty and University Rights and Responsibilities in University Sponsored Instructional Materials," Michigan State University, November 16, 1973.

2. Use and safeguarding of data collected from client households.

Where return signals from client households are monitored for record-keeping and administrative purposes, the right of client privacy is critical. Presuming that informed consent is critical, the nature of the information provided to the client must be carefully prepared and clear. A standard procedure for renewal of consent should be developed where monitoring occurs over a long period. Perhaps each incident of monitoring should be signaled to the client.

FCC POLICIES

1. Documentation of state, regional and county needs for government channels.

Government access channels are free from the time subscriber service is inaugurated on a cable system until five years after the completion of the basic trunk line. After this developmental period the FCC will consider whether to expand or curtail free use.[1]

If a state or regional government makes experimental use of a cable channel and discovers it can make effective use of that channel, then that experiment may have application for every other cable system within the state or region.

For example, the field experiment reported in this volume was conducted in Bay City and Midland by the Michigan Department of Social Services. The value to the Department and potential for implementation extends beyond the Bay City-Midland area and documents a government channel need throughout the state. The use in Bay City-Midland applies equally to East Lansing, Grand Rapids, Ann Arbor, etc.

[1] FCC, "Cable Television Service; Cable Television Relay Service," Federal Register, Vol 37, No. 30, Part II, February 12, 1972, p. 3270.

Government channel users and the FCC should systematically take cognizance of the extension potential where successful applications of the government channels have been demonstrated in one location.

2. Qualification and coordination regarding use of the "local government" channel.

It may be helpful for the FCC to consider a general statement of definition of "local government" and clearly fix responsibility for coordination of government uses.

Many potential government users are not within the jurisdiction of the franchisor. The foster parent training experiment provides an example. The State Department of Social Services is organized along regional and county lines. The foster parent program is clearly a government service for Bay City residents, but is not administered by any agency of the franchisor. Government services, for cable service areas, but not administered within the franchise jurisidication, should qualify under the definition of government uses of the "local government" channel. If so, it may be useful for the FCC to instruct the franchisor of the responsibility to coordinate the use among qualified government users across other jurisdictions.

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APPENDIX A

Program Descriptions

Program Number 1 (Tapes 1 and 2)

Talk: Phyllis Cornell, M.S.W., A.C.S.W., Director of Services, Child and Family Services of Michigan, Inc.

Ms. Cornell discusses some of the problems experienced by persons involved in foster parenting: the foster child, the foster family, the legal parents, and the social worker.

She explains the dilemmas a child experiences when he enters a new foster home for the first time: the sense of loss and anxiety and a reduced capacity to cope with everyday problems because of the strangeness of his new situation. Ms. Cornell discusses the challenges and gratifications of foster parenting in an effort to dispel some of the myths about foster care, stressing the need to assess one's motivations for volunteering to foster a child, to assess the strengths and weaknesses in the foster family's ability to cope with some of the tensions of taking a new, and possibly disoriented or disturbed, child into the home, to understand that the foster parents may find little or no immediate reward for their concern and generosity in dealing with the foster child. She explains the role of the social worker in his relationship with the child, the foster family, and the legal parents, emphasizing the agent's purpose is to support and aid the foster child in the transitions and adjustments involved in his new situation, but also to aid the foster family in coping

with its new responsibilities.

Film

The film, titled Johnny Boy, produced by Joyous Lake, Inc., Media House, Jacksonville Beach, Florida, describes the lonely and insecure feelings of a foster child as he enters a new foster home.

Discussion

A part of the group's discussion centers on the problem of dealing with the foster child's relationship with his natural parents. It is mentioned that the child retains memories and images of his natural parents which the foster parents must recognize and accept. In many cases the natural parents' encounter with the foster family is filled with antagonism and difficulties arise when visits with natural parents are arranged. It is suggested that the social worker should be relied upon as an intermediary and that prospective foster parents should understand that they do not have the sole jurisdiction over the child once he enters their home. The natural parents often retain not only visitation rights, but also final say over the child's travel with the foster family or medical attention that he might require. Again, the social worker's role in maintaining communications in these instances and in acting authoritatively for the child is stressed.

Some of the foster children themselves discuss their reactions to the foster care program and their personal experiences in foster homes. One young man thinks that younger children need the security of a replacement "father" or "mother" when fending for themselves with his school peer

groups and playmates. But he indicates that the older foster child needs something more -- understanding, affection, and more tangible forms of help in setting his world straight.

One foster parent notes the tension a child experiences when he enters a foster home and that getting over that initial nervousness is important. It is also mentioned that in some cases, where communication between the child, his natural parents, and foster parents remains open, a lasting relationship can be formed which will last beyond the child's stay in the foster home and will serve to nurture him.

Foster parents readily recognize the emotional aspects of taking a foster child into one's home. The rewards gained from seeing a child grow in his ability to cope with his own problems and those of his family situation can be great.

The question of how the child addresses the members of his foster family is brought up by some of the prospective foster parents. Experiences range from the formal to informal forms of address, but generally suggestions emphasize that the child be given a good deal of freedom in deciding how to address his foster parents, especially upon first encounter.

Program Number 2 (Tapes 1 and 2)

Talk: Byron Hosmer, M.S.W., A.C.S.W., Psychiatric Social Worker, Private Practice

Mr. Hosmer discusses the social and personal framework of the foster care program. He notes the contractual nature of marriage in which the state protects the rights and mutual obligations of the marriage partners and

their offspring. It is at the point at which the marriage relationship breaks down that the state, through the foster care agency, becomes involved in the familial situation.

In the case of a natural calamity, such as the death of the parents, or when the quality of parental care is inadequate, the state takes steps to care for the child. Mr. Hosmer notes that the foster care agency not only moves to replace the natural parents, but also to reorganize the relationship between the individuals involved. Operating on the premises of modern developmental theory, the agency attempts to establish a near-normal home situation for the child's growth, i.e., the foster home.

Mr. Hosmer notes that perhaps 10 per cent of all foster children are permanently removed from the guardianship of their natural parents. Nine times out of ten the purpose of placing a child into a foster home is to allow time and freedom to rehabilitate the original family unit. Thus, the foster care system should be regarded as primarily a temporary service.

He mentions dilemmas which a foster parent can face when presented with a child's loyalty to his natural parents. The shift for the child is very difficult, the development of his value system is interrupted and his models have changed. The resistance which foster children often present to the overtures of the new foster family are rooted in the personal conflict which the interruption of normal family life brings about. Mr. Hosmer notes that children from particularly deprived or abusive situations will have the greatest wall built around them -- a self-defense mechanism built up against the difficulties of the home situation.

The foster care social worker should be relied upon to ease the problems that the foster family might have in dealing with the demands of the natural parents on the child and the foster group itself. In res-

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ponse to a question about how to answer a child's queries about his natural parents, it is suggested that honesty is the surest way to assist the foster parents in opening up a communication network with the child. This involves not only factual responses to the child's questions, but also an emotional response to his unasked questions and personal confusion.

Mr. Hosmer emphasizes the importance of the natural resourcefulness of children in these situations, and suggests that the ability to overcome the strangeness and confusion of a new situation should be aided at every turn by the social worker and the new foster family.

Discussion

The discussion concerns the feelings and roles of those involved in foster care. Questions are raised about how to fit the foster child into the family framework outside the immediate foster family, about problems arising from a foster child's dilemma over how to address his new foster parents, and how to deal with problems of discipline.

Experienced foster parents note the need to introduce the foster child into the broader family structure. They emphasize that the child should be allowed to choose the manner in which he addresses his foster family, while the social workers note that these children are able to discriminate between foster and natural parents and that they are generally able to adjust to the new figures of authority in the foster family.

In discussion related to problems of discipline the issue of whose side to take in a dispute over the child's behavior is raised. In cases where the child's behavior is obviously mistaken, the foster parents are expected to provide firm guidance and discipline. However, when a foster parent

suspects a child is being abused or unjustly accused of misbehavior, the group generally notes that foster parents must remember their role is to protect their charge and should act on that premise in getting to the bottom of the difficulties that might arise.

Another topic is the problem of helping the child adjust to his temporary situation and helping him get over the crises of visits with his natural parents. It is mentioned that the case worker should be kept informed of problems arising from such visits and the child's general adjustment to the foster home situation so that the agency has a broad information base upon which to make decisions in the child's best interest.

Program Number 3 (Tapes 1 and 2)

First Talk: Faye Harrison, Attorney, Examiner, Parole and Review Board, State of Michigan

Ms. Harrison discusses the legal aspects of the foster care program. She gives attention to the legal rights of children, of natural parents, of the state and the courts and the foster care agencies.

She notes that the child has well-established rights to adequate care in terms of food, clothing, and shelter; the right to adequate medical treatment; the right and obligation to receive an education until age sixteen; and a less clearly defined right to emotional security, to the aid and comfort of parents, to be their heir, and to have their support. Natural parents have two basic rights: custody and guardianship. The state's authority to alter the parent-child relationship stems from a social mandate sanctioned by statutory and common law. The courts and agencies of the state can completely alter or partially change the parent-

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child relationship. In foster care, the rights of the various persons involved depend primarily on how the child's foster care status came about, i.e., delinquency, parental neglect, death of parents, indigency, etc. Child welfare laws generally establish the agencies' authority to place the child in a foster home, to license and regulate those homes, and to pay for the care the child receives.

In cases of voluntary placement, the foster parents act as custodians only. The natural parents retain full rights and authority over the child and give full parental rights to the agency or social service only temporarily.

Different patterns of authority are associated with permanent or temporary wardships established by the courts in cases where children come into foster care via charges of parental neglect or delinquency.

Ms. Harrison also discusses the extent of foster parent liability for injury to the child or the damage or injury to other people and their property by the foster child. She suggests ways in which foster parents might organize themselves to effect legislation or changes in regulations which would give them more security in their status as foster parents: group insurance for liability, statutory regulation of adoption procedures, licensing practices, etc.

Second Talk: John Kenel, M.S.W., A.C.S.W., Psychiatric Social Worker, Private Practice

Mr. Kenel notes that the family has two primary social functions: the provision of the child's physical necessities, including his protection, and the socialization of the child. In most foster-care situations these normal functions cannot be served by the natural parents. In foster-care

cases the warm, intimate, and continuous relationship between parents and child that is required for the child's mental health and the parents' satisfaction has broken down. Not only are there acute situations in which the parents suffer severe emotional distrubance, but parents often simply are unable to cope with the addition of another individual in their relationship as husband and wife. Parents must make room for the child and must have the self-esteem and confidence necessary to pass a sense of security on to the child.

Mr. Kenel speaks of family therapy as one means to rectify an unstable situation in the home and reestablish a satisfactory environment for parents as well as children.

He notes that foster parents are often required to prove themselves to their wards because of cases where the natural parent has failed to come through at times when the child was dependent upon them. He emphasizes that children very often show greater adaptability and more self-confidence than the parent in crisis situations and that the foster parent should rely upon the child's resourcefulness in dealing with problems of adjustment.

Mr. Kenel addresses the problem of how a child might be taught the ability to adjust to new situations, to be aware of his own identity, and yet how to fit into accepted social patterns. He says the parent or foster parent must set realistic limits within which a child can develop his own identity, but warned against the imposition of the parent's standards, in matters such as dress and appearance, upon the growing child.

Mr. Kenel says he felt that a child's development was set in the first five years of his life. He notes that the basic groundwork of a child's development is laid in his early years, but emphasized that development is a life-long process. In order for parents to help rehabilitate a malad-

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justed child they must have confidence that they can help the child.

Mr. Kenel notes the need to differentiate between emotional and material giving. Also he mentions that parents might ask themselves what it is that they expect in return. He points out that children can take frustration in their desire for gratification and that it is an important part of the learning process for the child.

Discussion

The group is asked to discuss what it is that families do for their children in the foster care setting. Responses designate the provision of physical shelter and care, but emphasize the moral and emotional support and companionship that the family setting gives the child.

One foster parent describes her experience in telling her own children about the prospect of having a foster child come into the home. Generally, the children were more than willing and eager to have the newcomer, although first impressions were akin to having "company" to play with. The foster parent emphasizes that she had told her own family about the possible adjustment problems the new child might face and the fact that his behavior might not fit with the normal activity of the family at first.

One foster parent describes his first encounter with a new, and very disturbed child he brought to his home. The little boy was encouraged by the foster parent to release all of the pent up emotions and fears he was experiencing, and the parent notes that after a loud and long session of crying, the newcomer was soon playing with his own children.

One foster parent discusses the need to regard foster children as one's own in matters of discipline as the surest guide to giving fair

treatment and consideration to the needs of the foster child.

Program Number 4 (Tapes 1 and 2)

Talk: Hal Sommerschield, Ph.D., Consulting Psychologist

Dr. Sommerschield opens his remarks by stressing the need for foster parents to realize the importance of interpersonal relations in establishing rapport with their foster child. Not only is there a need to understand the nature of the child's relationship with his natural parents, but the foster parent must know how to develop his own positive relationship with the child.

Dr. Sommerschield notes the importance of the child's first relationships with adults, especially his own father and mother. These serve as models for his future relationships with others, his capacity for affection, and his ability to function independently within a network of stable social relationships.

He sees the foster parents' most important role as meeting the needs of the child first, suggesting that motivating the child towards achievement in school, etc. are secondary considerations. This led to his discussion of the basic needs of the child and how those needs develop.

Dr. Sommerschield describes the stages in the child's development of attachments to adults and other members of his family. He notes that human infants are extraordinarily dependent upon their mothers and other adults to maintain the interpersonal attachments they need. A break in the development of these relationships can cause maladjustments in the child's behavior or interfere with the development of intellectual ability or perceptual-motor coordination.

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He stresses that it is important for those involved in foster care to know what relationships a child had developed before being removed from his home. Foster children should be dealt with in terms, then, of how they relate to other people, not by their chronological age.

Dr. Sommerschield notes that a child's relationship to adults is based on interaction, not the sex of the parent or foster parent. In the long run he suggests that a full sharing of parental responsibilities can give a child the greatest security and develop the most responsiveness in him. Relationships between parents and between parents and the child which are dysfunctional can cause severe emotional disturbances and foster parents must strive to provide their foster child with the relationships that will help him recover from previous bad ones. Thus, rather than punishing any sign of abnormal behavior an effort must be made to understand the sources of that behavior. He suggests that reliance on the social worker to provide information on the background of the foster child and to aid the foster parents in these matters is essential.

Discussion

In the group's sharing of their experiences as foster parents and foster children, they are asked to discuss how the foster family can help a child gain in self-esteem and to learn certain rules of behavior.

One foster child suggests that no matter how hostile a child's behavior might be, he still needs affection and security. He suggests that it is past disappointment and mistreatment that cause hostility more than any feelings toward new foster parents per se.

One case worker notes that in dealing with cases of neglect and rejection of the child by his natural parents, the foster parent must

realize that the child has been "programmed" to react in terms of his early relationship; he will repeat the behavior patterns developed to protect himself until someone helps him break the chain and work out his dilemmas. Thus, well-intentioned foster parents should not be shocked by a child's unwillingness to accept the kindness and attention they have to offer, but should try to understand the sources of the child's isolation.

One case worker notes that the agency will often accept a foster child's assessment of the character of his placement, and in many cases have withdrawn licensing on that basis.

One foster child describes his first weeks in a new foster home as a period of "testing". He notes that foster parents should understand that they must show love first before they can expect a response from their foster child whose world has often been one filled with neglect.

The group discusses the role of the foster parent as disciplinarian. It is suggested that the parents must have confidence in themselves and have the right to expect certain behavior in their home. Strictness is not condemned, but the general consensus is that the ground rules should be laid down by the parents while at the same time it must be remembered that a foster child has special problems which recommend leniency and informality in controlling his behavior.

Program Number 5 (Tapes 1 and 2)

Talk: Martin Schindeling, Ph.D., Clinical Psychologist

Dr. Schindeling centers his talk on the special problems of adolescents in the foster care situation. He identifies problems which are general to adolescent development: independence and problem-ownership,

social adjustment and related social skills, and social maturity and the attitudes that accompany maturation. He notes that the period of adolescence in modern society has lengthened, making the transition rougher on the teenager. Today it takes longer to become self-supporting and self-sufficient; marriage is usually delayed and an individual's contribution to society does not usually occur during adolescence. Becoming part of the adult world can be confusing and frightening as well as exciting, and the teenager's roles and responsibilities are not always clear. At one time or another adolescents are going to be problems for their parents. Over-sensitivity, defiance, and extremes of mood and activity accompany the physical metamorphosis that is taking place in the adolescent. Extremes of self-criticism and self-admiration cause internal conflicts which must be understood by the foster parent confronted with the responsibility for a teen-age foster child.

Normally, adolescent self-centeredness diminishes by the age of fifteen. With foster children who have not had normal family relationships to sustain them, adolescence and the problems associated with it becomes more persistent, troublesome, and longer-lasting. Resolution of problems by trial and error is characteristic of adolescence as a means to develop independence from the parents, and often shows up as defiance. Submission to a parent's demands can be tantamount to compromise with the enemy in the eyes of an adolescent.

While a foster parent may understand why a child acts as he does, dealing properly with daily problems means helping a child to find alternatives for resolution of those problems. Stability in the home is essential to win over an adolescent. Teenagers have many problems, not all of which are the direct concern of parents. Dr. Schindeling advises that the parent learn to identify those problems which are specifically

his responsibility, and then allow the teenager the latitude to solve those problems which are his own personal concern. Pushing a child to solve his problems your way /the parent's/ is going to cause him to identify you with his problem and increase his difficulty in dealing with it. Also, he suggests that foster parents can safely view themselves as consultants rather than decision-makers for the adolescent.

If the foster parent identifies a problem as his own, then steps should be taken to bring it into the open and confront it. Foster parents are expected to give guidance to their children, who very often have suffered from the absence of guidance in their own homes. Without forcing one's beliefs on the foster child, standards should be suggested to him as an example rather than an order, and the child should be made to understand his foster parents' preferences. Foster parents need not feel guilty about setting standards of conduct in their homes, but should understand, too, that they are not expected to have all the answers. Foster organizations can be helpful in working out these types of problems through discussion and sharing of experiences. He suggests, too, that foster parents present a united front to their children to avoid confusion and resentment over standards of behavior. With adolescents criticism should be softened where possible and improvement should be recognized and rewarded on a short-term basis, so that the child understands that a parent is responding to him emotionally as an individual.

He notes also that teenagers often have problems understanding their sexuality because of the "conspiracy of silence" which surrounds sex in the family and in society generally. If foster parents feel unable to cope with adolescents in these matters, they should consult the social worker who is trained to do so.

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Discussion

Group discussion centers on problems of discipline with the older foster child. Generally an attempt is made to resolve the question of how one might get the child to comply with basic rules of behavior without injuring the very sensitive self-esteem of the foster child.

The question is asked of how one might teach a child basic honesty and forthrightness. If a parent suspects a child of stealing a gift which has been offered to him, what should he do? There is discussion of the merits of simply telling the child the wrong of his action or helping him to decide for himself the error of his behavior. There is the suggestion that older children should be given the chance to solve their own problems and to help each other. The foster parent must not only consider the child's circumstances, his age, and the basis of his own suspicion, but must learn to deal with such problems without assuming the role of accuser. It is suggested that only by being honest in expressing one's feelings can an adult hope to help the child in establishing his own rules of behavior and morality.

Another topic is the question of disciplining foster children in front of guests who might come to the home. Experienced foster parents note that the child's situation is the paramount consideration, and that embarrassing a teenager for bad table manners can be more damaging than waiting for a private moment to bring the mistake to the child's attention. The parent must decide what it is that he is concerned about, the child's feelings or appearances. It is generally held that since a foster child's situation is often so emotionally precarious, any unnecessary embarrassment to him should be carefully avoided. Flexibility in dealing with such day-to-day problems can help smooth the child's adjustment to his new

situation as well as give him a chance to develop his own guidelines for conduct.

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APPENDIX B

Television Production

In the process of videotaping the training program, three videotape formats were used: 2" 10-band quad tape from the talks and discussion sessions made at WUCM-TV at Delta College; 2" hi-band tape from one talk and the introductions and closings recorded at Michigan State's Instructional Television Service and credits and titling done by the character generator at Michigan State's WKAR-TV; ½" helical tape from the discussion sessions held in classrooms. In order to provide sync error-free edits, all ½" tapes were dubbed through a digital time base error corrector to 2" hi-band tape, and all lo-band tape was dubbed to hi-band. The hi-band work tapes were edited to hi-band masters and then dubbed to 3/4" cassettes for playback in the Gerity Cablevision system. The rather convoluted route from originals to cassettes was dictated by exigencies of the production situations, the editing needs and a desire for the highest technical quality possible under the circumstances.

Each program consisted of about 20 separate cuts, all edited from one quad recorder to a second, using electronic editing. When the 2" masters were dubbed to the 3/4" cassettes, the 2" masters and working tapes were erased and re-used. The cassettes remain in the Television and Radio Department at Michigan State University.

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APPENDIX C

Analysis of Weekly Interviews With Foster Parent
TV Training Program Participants

Introduction and Executive Summary

Each week for five weeks, representatives of five agencies which had recruited some of the participants in the foster parent TV training program were asked to interview those particpants by phone. The purpose of the interview was to ask for their reactions to elements of the program aired during the week of the interview, and to remind them of the next program in the series. Five persons were to conduct these weekly interviews by contacting as many of the participants from their agency as possible.

In the subsequent sections of this report, we have summarized the results of their efforts. At the end of those summaries is a composite table containing the primary data obtained from the telephone respondents.

In this introduction, we wish to do two things: (1) examine the usefulness of this weekly interview technique, and (2) to try to extrapolate from the separate program summaries any trends which appear to be suggestive or noteworthy. First of all, the method of using the agency people for conducting the weekly interview could be considered only partly successful. The number of people they interviewed was at its maximum 27, during the week of the first program, and this declined persistently week by week until only 11 completed interviews were provided by the fifth week and final program in the series. In my estimation, this is not sufficiently systematic to award considerable credence nor validity to the results. We do not know to what extent the weekly interviews contain successive interviews with the same people. We also do not know the basis by which they selected or obtained these particular participants for interview purposes. But of most concern would be the persistent decline in the number of people interviewed.

In the future, if it is deemed desireable to obtain reactions on a program-by-program basis, then it merits the design of a more thorough system of evaluation. The interviewing probably should be controlled by the research group, rather than an expectation that people who are otherwise busy could also find time to engage in this repetitive weekly task of program evaluation. The other pressing need would be for identification of the respondents to determine the extent to which people are being re-interviewed.

Given these limitations in the data, our summary of the results obtained on a week-to-week basis would indicate the following:

a. Most of the viewing after the first or second program was confined

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to the Monday or Tuesday showing. At least, those interviewed on this weekly basis became a group who had seen either the Monday or Tuesday showing.

b. Very few watched the programs alone. During the first week about 1/3 of the respondents had seen the program by themselves. By the second week and in all subsequent weeks, no more than a single viewer among those interviewed had seen the program without someone else.

c. There was a good deal of talking to other people about foster parenting during the week between programs. This tended to be on the order of three to five conversations about foster parenting among the viewers.

d. As to individual programs in the series, the evaluations of the specialists were varied. For programs 2 and 5, there was the most positive response in that for those two virtually all the viewers believed that the length of the talk was "about right." For others in the series, there were substantial numbers of viewers who described those talks as "too long." These tended to parallel evaluations of the knowledgability of the specialist. For programs 2 and 5, the specialists were generally characterized as very knowledgeable. For program 4, there was an even split in terms of perceived knowledgability.

e. Discussion group segments on the TV programs were uniformly judged as either "about right" or "too short" for all programs except the second program. For that program about 1/3 of the viewers felt the segment was "too long."

f. The viewers were asked whether the specialist's talks or the discussion group sessions were the more helpful segment in the program. The viewers generally believed the specialist segment was more helpful, particularly for programs 2, 3 and 4. For program 5, there was an even split as to which was more helpful, and for program 1, 2/3 of the viewers said the discussion group information was more helpful than the specialist information.

These weekly results should only be interpreted on the basis of the limited number of people so interviewed. More systematic and complete information about the impact of this training program and about the individual programs may be derived from the information obtained in the extended testings of participants both before and after the series began.

Bradley S. Greenberg

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Program 1 (Cornell)

Twenty-seven of the participants were interviewed after the first program was aired. Fourteen of these people did not see that first program. We will indicate their reasons after we summarize the responses of the 13 who did watch the first program.

Of the 13 viewers interviewed with the weekly questionnaire, 12 of them had seen it one time and one of them watched it more than once. Viewing was fairly evenly spread over the Monday, Tuesday and Thursday showings.

Most of the viewers had talked to other people about foster parenting in the prior week, not counting when they were watching the program. The average number of other people talked to by the group of 13 viewers was about three.

As to evaluation of the program, 7 of the 13 thought the first program with regard to the talk by the specialist, was "too long." The remainder thought that talk was "about right." The specialist was perceived by 9 of the 13 as "very knowledgeable" and by four as "fairly knowledgeable."

Their reaction to the discussion group segments in this first program was that 10 of the 13 felt that the segments were "about right" in length and the remainder said they were "too short." Generally, the viewers felt that people in the discussion groups raised important points. Five said the points were very important, and eight described them as important. No one said they were not important. Asked whether they found the talk by the specialist or the discussion group segments more helpful, two-thirds of the viewers said that the discussion group segments were more helpful in this program.

Half the viewers said there were distractions or interruptions in the house while they were watching.

Reasons given by those interviewed for their inability to watch the program included the following:

1. Four of them said they were no longer interested in being foster parents.

2. Two had not been notified of the program place or time until that day or had not been notified at all.

3. Two of them said that the broadcast was cancelled and that is why they did not watch. /A scheduling problem which affected the first Monday morning showing in the group viewing situation./

4. The remainder had a variety of reasons for being unable to watch but indicated they were still interested in the series.

Program 2 (Hosmer)

In all, 24 people were interviewed with the second weekly questionnaire. Of this group, 15 had seen the program and nine had not.

As to the viewing frequency and context, 10 of the 15 had seen the program once, two more than once, and for three, the answer was not marked on the form. The bulk of the viewing was done on Monday and Tuesday rather than Thursday. For this week, all 15 of the viewers had seen the program with someone else, seven had watched with their spouse and five had watched in group viewing sessions. Half had watched at the home of a host foster parent.

Interpersonal interaction about foster parenting increased between the first and the second week. Half of the viewers had talked with five or more people about foster parenting during the intervening week.

In this program, the evaluations of the talk by the specialist led 11 of the 15 to say that the talk was "about right" in length. This specialist was judged to be "very knowledgeable" by 12 of the 15 viewers.

As for the discussion part of the program, four respondents said those segments were "too long," five said they were "about right" and four said they were "too short." This was a distribution very similar to that found for the rated importance of those discussion group segments. Four viewers said the segments were "very important," six said they were "important" and five said they were "not important."

This week, 10 of the 15 found the talk by the specialist the more helpful part of the program. And by this time, two-thirds of the viewers said there were no distractions or interruptions while viewing.

Reasons given by the non-viewers for their failure to watch were relatively idiosyncratic among the nine non-viewers. Something came up for two of them, two others are no longer interested in the program, one forget and two said they would rather be licensed by what they referred to as the interview method.

Program 3 (Harrison, Kenel)

For this week, 17 people were interviewed. Of the 17, 11 were viewers and six were not.

For the viewing context, 10 of the 11 had seen the program one time and the watching was done on either the Monday or the Tuesday showing. Again, all of these people had watched the program with someone else, six in foster parent group viewing sessions and four with their spouse.

In the intervening week, these viewers either tended not to talk with other people or to talk with a large number of them. For example, three had talked with no others, two had talked with one other, whereas three reported

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talking with 10 or more people.

For this program, the talk by the specialist was described as "about right" by eight of the viewers and as "too long" by five others. This is more than eleven viewers but there were two speakers for this program. It was the second speaker whose talk was considered "too long." In terms of knowledgeability, eight viewers characterized the specialist as very knowledgeable, three as fairly knowledgeable, and four as not knowledgeable. Again, it was the second speaker who received the negative ratings from this viewer group. The discussion segments in the program were judged as either "about right" or "too short." Those segments were deemed to raise either "very important" or "important" points. During this week, all the viewers said that the talk by the specialist was more helpful than the discussion group segments.

Eight of the 11 viewers reported no distractions while they were watching.

Of the non-viewers, the reasons included the following:

1. One was no longer interested.

2. One was too busy.

3. One had company.

4. Two who watched the show at the cable vision studio found the door locked and they therefore missed the show.

Program 4 (Sommerschield)

Fifteen of the participants were interviewed after this program. Eleven had viewed the program, of whom 10 had seen it one time only. All the viewing was either on Monday or Tuesday. Ten had seen the program with someone else, primarily with their spouse or in a group viewing session. The locus of the viewing was either in their own home or at the home of host group.

There was some talking about foster parenting with other people. Most of this was done with two others, although three viewers had talked with 5, 6 or 10 other people in the intervening week.

As for program evaluation, four thought this week's program was "too long" and seven thought it was "about right." This specialist was equally judged as either "very knowledgeable" or "fairly knowledgeable."

The discussion group segments were either "about right" or "too short." The people in the discussion group in this week's program tended to raise "important points" as judged by eight of the 11 viewers. The talk by the specialist was judged to be the most helpful point of this week's program, according to seven of them.

Nine of 11 viewers said there were no distractions while watching.

The four people who had not seen the program gave the following reasons for not viewing:

1. One had to work overtime.
2. One had no transportation.
3. For one there was a death in the family.
4. The fourth was working on school activities.

Program 5 (Schindeling)

For this final program, 11 participants were interviewed. Nine had seen the program one time only, with viewing again confined to the Monday or Tuesday showing. Eight of the nine had seen the program with someone, either their spouse or in group viewing situation.

Talking with others in the prior week averaged out to about five or six such conversations per viewer.

Eight of the nine felt the program was "about right." This week's specialist was judged as "very knowledgeable" by six of the nine viewers.

The discussion group program segments were judged "about right" in length, and either "very important" or "important." Of the viewers, half believed that the talk by the specialist was more helpful and the other half felt the discussion group sessions were more helpful. Generally, there were no distractions while watching the program.

Of the two non-viewers, one had to work overtime and the other did not understand that it was a continuing series.

SUMMARY TABLE

Program:	1	2	3	4	5
# interviewed	27	24	17	15	11
# viewers	13	15	11	11	9
When seen? .M	6	7	6	5	4
T	4	7	4	7	4
Th	3	3	1	0	1
Seen:					
Alone	4	0	0	1	1
W/someone	9	15	11	10	8
Persons talked to about foster parenting	3	4	3.5	3	4.5
Specialist's talk:					
too long	7	1	5	4	1
about right	6	11	8	7	8
too short	0	3	0	0	0
Specialist:					
very knowledgeable	9	12	8	5	6
fairly knowledgeable	4	3	3	5	2
not knowledgeable	0	0	4	1	1
Discussion group segments:					
too long	0	4	0	0	0
about right	10	5	4	6	7
too short	3	4	4	5	2
Most helpful:					
specialist	5	10	10	7	5
discussion groups	10	4	0	3	5

APPENDIX D

FOSTER PARENT QUESTIONNAIRE

This study is being done by
Michigan State University
and
The Michigan Department of Social Services

All information you give us will be completely confidential.

Thank you for helping us.

April, 1974

Different people have different reasons for wanting to be foster parents. Please read each of the statements below and decide whether it is one of your reasons for wanting to be a foster parent. Why do you want to be a foster parent? Check one response for each statement.

1. I want to become a better person.

_____This is definitely one of my reasons
_____This is probably one of my reasons
_____This is probably not one of my reasons
_____This is definitely not one of my reasons

2. I want to share the things I have with a child who needs a home.

_____This is definitely not one of my reasons
_____This is probably not one of my reasons
_____This is probably one of my reasons
_____This is definitely one of my reasons

3. I want to help a child that no one else will help.

_____This is definitely not one of my reasons
_____This is probably not one of my reasons
_____This is probably one of my reasons
_____This is definitely one of my reasons

4. I want to do something worthwhile with the extra time I have.

_____This is definitely one of my reasons
_____This is probably one of my reasons
_____This is probably not one of my reasons
_____This is definitely not one of my reasons

5. I want to share my love with a child who needs a home.

_____This is definitely not one of my reasons
_____This is probably not one of my reasons
_____This is probably one of my reasons
_____This is definitely one of my reasons

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WHY DO YOU WANT TO BE A FOSTER PARENT?

6. I want to have a child around the house to care for.

_____This is definitely one of my reasons
_____This is probably one of my reasons
_____This is probably not one of my reasons
_____This is definitely not one of my reasons

7. My spouse wants to take care of a child.

_____This is definitely not one of my reasons
_____This is probably not one of my reasons
_____This is probably one of my reasons
_____This is definitely one of my reasons

8. According to my religious beliefs, I should help people.

_____This is definitely one of my reasons
_____This is probably one of my reasons
_____This is probably not one of my reasons
_____This is definitely not one of my reasons

9. I want to be worth something to another human being.

_____This is definitely one of my reasons
_____This is probably one of my reasons
_____This is probably not one of my reasons
_____This is definitely not one of my reasons

Which one of the following reasons is the most important reason for you to want to be a foster parent? Put a 1 next to it. Which is the second most important reason for you? Put a 2 next to it. Put a 3 next to the third most important reason for you. Rank all the reasons, with the least important reason getting a 9 next to it.

_____I want to become a better person.

_____I want to share the things I have with a child who needs a home.

_____I want to help a child that no one else will help.

_____I want to do something worthwhile with the extra time I have.

_____I want to share my love with a child who needs a home.

_____I want to have a child around the house to care for.

_____My spouse wants to take care of a child.

_____According to my religious beliefs, I should help people.

_____I want to be worth something to another human being.

---

1. At this time, how interested are you in becoming a foster parent?

   _____very interested
   _____quite interested
   _____somewhat interested
   _____not very interested
   _____not interested at all

2. At this time, how certain are you that you will want to be a foster parent?

   _____very certain
   _____quite certain
   _____somewhat certain
   _____not very certain
   _____not certain at all

3. In general, do you think you want to be a foster parent?

   _____definitely yes
   _____probably yes
   _____uncertain
   _____probably not
   _____definitely not

Prospective foster parents often worry about different things connected with being foster parents. Please look at each one of these and tell us whether it is something which worries you. For these items please assume the child is at least five years old.

1. I am worried that I might fail as a foster parent.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

2. I worry whether my foster child will like me.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

3. I am worried about meeting my foster child for the first time.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

4. I worry about having a foster child in my home.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

5. I am worried whether I can make my foster child happy.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

6. I worry whether I will be a good foster parent.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

Please continue to tell whether you are worried about any of these things. For these items assume the child is at least five years old.

7. I am worried about meeting my foster child's natural parents.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

8. I am worried about disciplining my foster child when I have to.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

9. I am worried that my foster child might get into serious trouble outside the home.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

10. I worry about my foster child fitting in with my family.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

11. I worry how visits to the natural parents will affect my relationship with the child.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

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Below are some statements that parents have made about children. For each statement please check whether you agree or disagree, and how much you agree or disagree.

1. It is more difficult to raise a child in your home who is not your own child.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

2. It is important for a foster child to develop his/her personal identities regardless of what adults think those identities should be.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

3. One problem with taking care of a child who is not your own is that he/she requires more attention.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

4. The foster child needs to adjust to a foster home more than those already in the home need to adjust to the foster child.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

5. A foster child should have chores and duties in the home appropriate to his/her age.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

6, A foster child should be grateful for the opportunity to live in another home.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

7. The best way to get a child to do something is to withhold something the child likes.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

8. If a foster child runs away from a foster home, that child should be punished.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

9. Children who come into foster care are well prepared by a social worker for this experience.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

10. A foster child who has been sexually abused will be a bad influence on your own children because the child "knows too much."

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

11. Foster children who make-up lies about their natural families must be corrected.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

12. Generally, a foster child should be able to predict how a foster parent will react in most situations.

Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

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For a lot of questions that parents have, there are no right answers. But some answer may be better than others. For each of these questions, decide which answer you think is best. Please circle the letter in front of the answer you think is the best answer:

1.. What can the foster family expect from a teen-ager?

a. The teen-ager will try to guess how the foster family will react.
b. The teen-ager will have high self-esteem.
c. The teen-ager will want to be around people.
d. The teen-ager will seldom be critical of himself or herself.

2. Sometimes teen-agers are smart-alecky even when you try hard to be nice. The best way to deal with this is to:

a. Tell the child to treat you with respect.
b. Punish the child.
c. Respond to what the child is doing rather than saying.
d. Ignore the child while he or she is smart-alecky.

3. When dealing with children who say. "I want to do it my way," and you don't think that way is right, you might:

a. Give in to the child's desires.
b. Hold to your position and attempt to get the child to accept it.
c. State your position without forcing it.
d. Ignore the difference of opinion and it will get smaller.

4. If a teen-ager comes to you for advice, what might your attitude be?

a. "If I were you, I'd do this."
b. "Do whatever you like."
c. "Don't let anything bother you, it will all work out."
d. "I might try this, but I don't know whether it is right for you."

5. When teen-agers ask questions about sex, you might:

a. Try to answer questions and if you can't, ask a social worker.
b. Say you don't want to talk about sex.
c. If you don't know the answers, just answer to the best of your ability.
d. Change the subject.

Circle the best answer you see.

6. By four years of age, the child is:

   a. Seeking to be independent.
   b. Beginning to conform to the parent's expectations.
   c. Recognizing differences in the people around him or her.
   d. Largely selfish and self-concerned.

7. School difficulties are often due to:

   a. Lack of ability in the teacher.
   b. Lack of discipline in the child.
   c. Parents not accepting the fact that the child is becoming more attached to others.
   d. The child's immaturity.

8. Young foster children often react to being away from their natural parents by:

   a. Being cheerful and happy for leaving a bad experience.
   b. Bed-wetting, refusing to eat or overeating.
   c. Having big problems in relating to and interacting with adults.
   d. Being not concerned about anything.

9. The social worker who works with foster parents must:

   a. Primarily look out for the welfare of the child in the foster home.
   b. Find quality foster care and rehabilitate the natural parents.
   c. Look for a permanent home for the child.
   d. Protect the right of the natural parents.

10. When the child first comes to your home, the child is likely to be:

   a. Polite and receptive.
   b. Happy and relaxed.
   c. Indifferent toward you.
   d. Polite and frightened.

11. From early experiences, some children believe that they are not worth much. How might you change this?

   a. Work alone with the child to reverse the early messages that they were not worth much.
   b. With the social worker, try to do away with the influence of the natural parents.
   c. Work with the social worker to help the child experience acceptance in the foster home.
   d. Permit the child to work out his own problem in his own way.

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Circle the best answer you see.

12. Young children sometimes ask the same question over and over; why do you think they do this?

    a. The child is slow to learn.
    b. The child cannot hear.
    c. The child is trying to upset you.
    d. The child needs attention from you.

13. A basic principle in raising foster children is that:

    a. Their natural parents are very important to them.
    b. The children want to be in a better home than they were in.
    c. They should be treated as little adults with appropriate responsibilities.
    d. They should be treated as small children and protected.

14. Some children receive more help from their foster parents than do others. In order to be most helpful you should:

    a. Do what you think is best for the child.
    b. Give the child what he or she asks for.
    c. Allow the child to be independent.
    d. Keep a firm hold on the child.

15. There are some things that foster parents should know. Which of the following is the best suggestion:

    a. Children of foster parents often resent the foster child.
    b. Natural parents seldom create problems.
    c. Foster children know how they should behave and should be made to behave that way.
    d. Foster children rarely resent being taken away from their parents.

16. Which of these affects the child's ability to cope with being taken away from their natural parents?

    a. The child's age.
    b. Help offered during the time of separation.
    c. The reaction of the natural parents to the separation.
    d. All of these.

Circle the best answer you see.

17. Which of the following attitudes is most critical for successful foster parents?

a. An attitude which says that my home is your home.
b. A couple that feels somewhat empty because they have no one else to love.
c. A couple that is independent enough to get along without help from others.

18. If a child is neglected and made a temporary ward of the court, which of the following is true?

a. The foster parents have both physical possession of the child and guardianship.
b. The foster parents have only temporary physical possession of the child and the courts have guardianship.
c. The foster parents have only temporary physical possession of the child and the natural parents have guardianship.

19. In the use of discipline, which of these is most correct?

a. A foster parent must avoid the use of force even for protection.
b. The foster parents may not use reasonable force to discipline the child.
c. The foster parent is liable if it can be shown that they were negligent in protecting the child from being hurt.

20. If a foster parent wants to adopt the child, which of the following is true?

a. After a suitable period of time the child can be adopted by the foster parents.
b. If the foster parents can show they can afford to adopt the child, they will be allowed to adopt him/her.
c. If the child decides to stay with the foster parents and not to return to the natural parents, they can adopt.
d. None of these.

21. Foster parents receive bi-monthly payments for providing care for children. Of the following, which is correct regarding your out-of-pocket expenses for a foster child.

a. It will cost the same for the foster child as it will for your own child of that age.
b. You will receive slightly more than you would for your own child of that age.
c. You will receive the same amount of money for children regardless of age.
d. You will receive less than it would cost you for your own child.

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Circle the best answer you see.

22. Foster children are covered by Medicaid. This means that:

a. What you spend for the child's medical and dental expenses will be reimbursed later.
b. Only the child's medical bills may be applied to the program. The child's dental expenses must be paid for by the foster parents, with later reimbursement.
c. All dental, medical and optical bills must be paid through using the Medicaid card.

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In these questions we want to find out where you have seen or heard comments about foster care. We also want to find out how often you have seen or heard these comments. Please read each question and check one number for each question.

1. How many different people did you talk to about foster care since you began watching the foster care programs?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

2. How many of these people are foster parents?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

3. How many of these people are professionally connected with foster care in some way (for example, lawyers, social workers, etc.)?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

4. How many hours did you spend talking with foster parents about foster care since you began watching the foster care programs?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

5. How many hours did you spend talking with professional people connected with foster care since you began watching the foster care programs?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

6. How many hours did you spend talking with your spouse about foster care since you began watching the foster care programs?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

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7. How many hours did you spend talking with your children about foster care since you began watching the foster care programs?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

8. How many news items or announcements about foster care did you hear on the radio during the time when the foster care programs were being shown?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

9. How many stories, news items or announcements about foster care did you see on television during the time when the foster care programs were being shown?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

10. How many stories about foster care did you read in the newspaper during the time when the foster care programs were being shown?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 or more

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We would like to find out how you feel about the TV foster care programs. Were they useful? Were they shown at a convenient time? For each statement please check whether you agree or disagree and how much you agree or disagree.

1. The training sessions were too long.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

2. The training sessions were at convenient times.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

3. There were many distractions during the sessions.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

4. Overall, the training sessions were more effort than they were worth.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

5. I usually got tired during the sessions.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

6. There were other things I wanted to do when the training sessions were on.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

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7. Usually, I had to force myself to pay attention during the sessions.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

8. I think that many of the things said on the shows are not true.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

9. Television was a good way to get this kind of information.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

Some people watched the training programs at home rather than in a group. We would like to know how you would compare watching the programs with other foster parents with watching the programs in your own home without other people. For each statement please check whether you agree or disagree and how much you agree or disagree.

1. Talking with others immediately after the show reduced some of my fears about being a foster parent.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

2. A social worker discussing the program alone with me would not have been as helpful as discussing the program with my group.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

3. I remembered the main points better because I talked to others about them right afterwards.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

4. I preferred watching the program in a group to watching it in my home without a group.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

5. Talking about the program with other foster parents right afterwards was worthwhile.

Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

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We would like to know how you felt about the speakers on the program. Did you think they knew what they were talking about? Were they trustworthy? For each of the items please indicate how you think they were?

In general, the different speakers in the sessions were:

	Very	Somewhat	Not Certain	Somewhat	Very	
reliable:	_____	_____	_____	_____	_____	unreliable
qualified:	_____	_____	_____	_____	_____	unqualified
honest:	_____	_____	_____	_____	_____	dishonest
pleasant:	_____	_____	_____	_____	_____	unpleasant
aggressive:	_____	_____	_____	_____	_____	meek
active:	_____	_____	_____	_____	_____	passive
uninformed:	_____	_____	_____	_____	_____	informed
valuable:	_____	_____	_____	_____	_____	worthless
unfriendly:	_____	_____	_____	_____	_____	friendly
selfish:	_____	_____	_____	_____	_____	unselfish
timid:	_____	_____	_____	_____	_____	bold
introverted:	_____	_____	_____	_____	_____	extroverted

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We'd like to know which programs you watched. Below is a brief reminder of what each program was about and then a few questions about your viewing.

Program 1: Phyllis Cornell, Ph.D.

This program talked about the relationships between the natural parents and the foster parents and the relationship between the foster family and the foster child. This program also discussed what kinds of obligations there are between the foster family and the social services.

1. How many times did you see this show?

_____ I didn't get a chance to see this one

_____ One time

_____ Two times

_____ Three times

2. With whom did you see this show?

_____ By myself

_____ With my spouse

_____ With other prospective foster care parents

_____ With others: Who? _____

Program 2: Byron Hosmer, Social Worker

In this program, foster parents were discussed as substitutes for a family which has often been found negligent by the courts. Information about the social worker's job also was presented.

3. How many times did you see this show?

_____ I didn't get a chance to see this one

_____ One time

_____ Two times

_____ Three times

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4. With whom did you see this show?

_____ By myself

_____ With my spouse

_____ With other prospective foster care parents

_____ With others: Who? _____

Program 3: Faye Harrison, Lawyer

This program examined the legal statutes that apply to foster care. The topics included physical treatment of the child, medical responsibility, custody of the child and liability for acts of the child.

5. How many times did you see this show?

_____ I didn't get a chance to see this one

_____ One time

_____ Two times

_____ Three times

6. With whom did you see this show?

_____ By myself

_____ With my spouse

_____ With other prospective foster care parents

_____ With others: Who? _____

Program 4: Harold Sommerschield, Psychologist

This program was primarily interested in the stages of development of the child and the effects of separating the child from his natural parents. The immediate reaction of the child to separation from parents was discussed.

7. How many times did you see this show?

_____ I didn't get a chance to see this one

_____ One time

_____ Two times

_____ Three times

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8. With whom did you see this show?

_____ By myself

_____ With my spouse

_____ With other prospective foster care parents

_____ With others: Who? _____

Program 5: Martin Shinedling, Ph.D.

This program focused on the teen-ager. Topics such as sexual maturation, sex attitudes, moral and emotional growth, and self-attitudes were discussed.

9. How many times did you see this show?

_____ I didn't get a chance to see this one

_____ One time

_____ Two times

_____ Three times

10. With whom did you see this show?

_____ By myself

_____ With my spouse

_____ With other prospective foster care parents

_____ With others: Who? _____

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APPENDIX E

Cognitive Knowledge Items

For a lot of questions that parents have, there are no right answers. But some answer may be better than others. For each of these questions, decide which answer you think is best. Please circle the letter in front of the answer you think is the best answer: (Only the correct answer appears here; the full set of responses is in Appendix D)

1. What can the foster family expect from a teen-ager?

   a. The teen-ager will try to guess how the foster family will react.

      Incorrect at first administration (T_1), n = 27;
      Incorrect at second administration (T_2), n = 14

2. Sometimes teen-agers are smart-alecky even when you try hard to be nice. The best way to deal with this is to:

   c. Respond to what the child is doing rather than saying.

      Incorrect at T_1, n = 26; at T_2, n = 19

3. When dealing with children who say, "I want to do it my way," and you don't think that way is right, you might:

   c. State your position without forcing it.

      Incorrect at T_1; n = 23; at T_2, n = 23

4. If a teen-ager comes to you for advice, what might your attitudes be?

   d. "I might try this, but I don't know whether it is right for you."

      Incorrect at T_1, n = 10; at T_2, n = 13

5. When teen-agers ask questions about sex, you might:

   a. Try to answer questions and if you can't, ask a social worker.

      Incorrect at T_1; n = 26; at T_2, n = 21

6. By four years of age, the child is:

   d. Largely selfish and self-concerned.

      Incorrect at T_1, n = 50; at T_2, n = 52

7. School difficulties are often due to:

   c. Parents not accepting the fact that the child is becoming more attached to others.

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Incorrect at T_1, n = 48; at T_2, n = 40

8. Young foster children often react to being away from their natural parents by:

   b. Bed-wetting, refusing to eat or overeating.

   Incorrect at T_1, n = 34; at T_2, n = 20

9. The social worker who works with foster parents must:

   b. Find quality foster care and rehabilitate the natural parents.

   Incorrect at T_1, n = 37; at T_2, n = 32

10. When the child first comes to your home, the child is likely to be:

    d. Polite and frightened.

    Incorrect at T_1, n = 28; at T_2, n = 30

11. From early experiences, some children believe that they are not worth much. How might you change this?

    c. Work with the social worker to help the child experience acceptance in the foster home.

    Incorrect at T_1, n = 24; at T_2, n = 24

12. Young children sometimes ask the same question over and over; why do you think they do this?

    d. The child needs attention from you.

    Incorrect at T_1, n = 4; at T_2, n = 1

13. A basic principle in raising foster children is that:

    a. Their natural parents are very important to them.

    Incorrect at T_1, n = 38; at T_2, n = 24

14. Some children receive more help from their foster parents than do others. In order to be most helpful you should:

    a. Do what you think is best for the child.

    Incorrect at T_1, n = 5; at T_2, n = 6

15. There are some things that foster parents should know. Which of the following is the best suggestion:

    a. Children of foster parents often resent the foster child.

    Incorrect at T_1, n = 37; at T_2, n = 30

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16. Which of these affects the child's ability to cope with being taken away from their natural parents?

    d. All of these.

    Incorrect at T_1, n = 15; at T_2, n = 20

17. Which of the following attitudes is most critical for successful foster parents?

    a. An attitude which says that my home is your home.

    Incorrect at T_1, n = 9; at T_2, n = 5

18. If a child is neglected and made a temporary ward of the court, which of the following is true?

    b. The foster parents have only temporary physical possession of the child and the courts have guardianship.

    Incorrect at T_1, n = 20; at T_2, n = 12

19. In the use of discipline, which of these is most correct?

    c. The foster parent is liable if it can be shown that they were negligent in protecting the child from being hurt.

    Incorrect at T_1, n = 25; at T_2, n = 6

20. If a foster parent wants to adopt the child, which of the following is true?

    d. None of these.

    Incorrect at T_1, n = 19; at T_2, n = 15

21. Foster parents receive bi-monthly payments for providing care for children. Of the following, which is correct regarding your out-of-pocket expenses for a foster child?

    a. It will cost the same for the foster child as it will for your own child of that age.

    Incorrect at T_1, n = 28; at T_2, n = 31

22. Foster children are covered by Medicaid. This means that:

    c. All dental, medical and optical bills must be paid through using the Medicaid card.

    Incorrect at T_1, n = 15; at T_2, n = 11

Items 15, 16, 17 and 21 are from Program 1; items 9, 10, 11 and 12 are from Program 2; items 13, 14, 18, 19, 20 and 22 are from Program 3; items 6, 7

and 8 are from Program 4; items 1, 2, 3, 4 and 5 are from Program 5.

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APPENDIX F

Affective Knowledge Items

Below are some statements that parents have made about children. For each statement please check whether you agree or disagree, and how much you agree or disagree. (Scoring key: 2 = primarily correct; 1 = uncertain; 0 = incorrect)

1. It is more difficult to raise a child in your home who is not your own child.

0	0	1	2	2
Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

0 score at first administration (T_1), n = 31;
at second administration (T_2), n = 26

2. It is important for a foster child to develop his/her personal identities regardless of what adults think those identities should be.

2	2	1	0	0
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 6; at T_2, n = 4

3. One problem with taking care of a child who is not your own is that he/she requires more attention.

2	2	1	0	0
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 29; at T_2, n = 17

4. The foster child needs to adjust to a foster home more than those already in the home need to adjust to the foster child.

2	2	1	0	0
Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

0 score at T_1, n = 26; at T_2, n = 27

5. A foster child should have chores and duties in the home appropriate to his/her age.

2	2	1	0	0
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 3; at T_2, n = 0

6. A foster child should be grateful for the opportunity to live in another home.

2	2	1	0	0
Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

0 score at T_1, n = 14; at T_2, n - 8

7. The best way to get a child to do something is to withhold something the child likes.

0	0	1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 11; at T_2, n = 16

8. If a foster child runs away from a foster home, that child should be punished.

0	0	1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 10;at T_2, n = 16

9. Children who come into foster care are well prepared by a social worker for this experience.

2	2	1	0	0
Strongly Disagree	Disagree	Not Certain	Agree	Strongly Agree

0 score at T_1, n = 9; at T_2, n = 16

10. A foster child who has been sexually abused will be a bad influence on your own children because that child "knows too much."

0	0	1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 6; at T_2, n = 3

11. Foster children who make-up lies about their natural families must be corrected.

0	0	1	2	2
Strongly Agree	Agree	Not Certain	Disagree	Strongly Disagree

0 score at T_1, n = 29; at T_2, n = 27

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12. Generally, a foster child should be able to predict how a foster parent will react in most situations.

0	0	1	2	2
Strongly Disagree	Agree	Not Certain	Agree	Strongly Agree

0 score at T_1, n = 30; at T_2, n = 22

Items 1, 3, 9 and 10 are from Program 1; items 7, 11 and 12 are from Program 2; items 2 and 4 are from Program 3; items 6 and 8 are from Program 4; item 5 is from Program 5.

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SECTION II

CABLE-DELIVERED PUBLIC TRAINING SERVICES

COST TRADEOFFS AND RELATED POLICY ISSUES

By

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LISTING OF ANNOTATED TABLES

Table I

Cost Summary for Alternative Scenario I: A Bicycling Schedule for an Inter-Urbanized-Area Bicycled-Tapes Network with One Showing in Each of Nine Places (Prospective and Tenured Foster Parents, Half of Whom View in Homes, Half of Whom View in Community Centers Staffed with Social Service Professionals)

Table II

Cost Summary for Alternative Scenario II: Repetitive Showings in One of the Urbanized Areas of Jackson, Kalamazoo, or Saginaw (Prospective Foster Parents Only Who View in Homes)

Table III

Cost Summary for Alternative Scenario III: Repetitive Showings in the Saginaw Urbanized Area Under Alternative Projections of Increased Recruitment (Prospective Foster Parents Only Who View in Homes)

Table IV

Cost Summary for Alternative Scenario IV: Repetitive Showings in One of the Urbanized Areas of Jackson, Kalamazoo, or Saginaw when Tapes are Bicycled Among Eight Other Places during Intershow Periods (Prospective Foster Parents Only Who View in Homes)

Table V

Cost Summary for Alternative Scenario V: Repetitive Showings in the Saginaw Urbanized Area Under Alternative Projections of Increased Recruitment when Tapes Are Bicycled Among Eight Other Places during Intershow Periods (Prospective Foster Parents Only Who View in Homes)

Table VI

Cost Summary for Alternative Scenario VI: Single-System Distribution in Lansing City in the Last Quarter of 1978 (As a Representative Showing in a Bicycled-Tapes Network in Which a Training Series Produced in Rented Facilities or a Governmental Studio is Periodically Shown in Each Place of the Network on a Free or Leased Channel to Prospective Foster Parents Only Who View in Homes)

Table VII

Cost Summary for Alternative Scenario VII: Local Electronic Network Distribution in the Lansing Area in the Last Quarter of 1979 (As a Representative Showing in a Bicycled-Tapes Network in Which a Training Series Produced in Rented Facilities or a Governmental Studio Is Periodically Shown in Each Place of the Network on a Free or Leased Channel to Prospective Foster Parents Only Who View in Homes)

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Total Cost per Family Trained as a Function of Stepped-Up Recruitment in Alternative Scenarios III and V

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Figure C-I

Completion of a Local Cable Network from an Integrated Technical Design for Urbanized Lansing and Populous Outlying Tri-County Localities

Figure D-I

Policy-Exploration Simulation Model for Cable-Delivered Public Information Services

OVERVIEW

In this section of the overall report, cost tradeoffs and related policy issues are probed that arise in considering alternative scenarios for public agency implementation of training that relies on cable communication. Findings and policy recommendations derived from the scenarios and accompanying cost analyses are subsequently summarized. This summary report is followed by a more complete section report in which the scenarios are described and findings are elaborated. Suport for findings and policy recommendations is contained in fully annotated cost summaries for the alternative scenarios and in Appendices A, B, and C. Appendix A generally deals with the mathematics of a go-slow bicycling schedule, and with questions of data-base adequacy and methodology for forecasting numbers recruitable into cable-delivered training series. In Appendix B, equipment and operating costs are presented for a cost-shared governmental studio. Appendix C deals with the completion of a local cable network from an integrated technical design.

In Appendix D, a policy-exploration computer-simulation model is outlined that has been formulated to explore the consequences of alternative policies on the cost-effectiveness of delivering public information services over cable television systems or local cable networks. The model encompasses the projections of alternative scenarios and the accompanying cost analyses; it would also serve to guide continuing research.

SUMMARY REPORT OF FINDINGS AND POLICY RECOMMENDATIONS

OVERALL FINDINGS

Cost Per Client Trained Under Current Conditions. Under current conditions, the total cost per client trained, via training programs delivered over cable-television systems, could be as low as $28 when training tapes produced in rented studios are bicycled among several areas, programs are distributed on free channels, and as few as eleven clients require training every six months. Per client training cost for a comparable training series delivered in classrooms by live instructors and discussion-group leaders ranges from $95 to $146.

(The per client cable-delivered training cost of $28 reflects the cost of video programming and production, and minor programming revision over a three-year period; surface-mail transport of videocassettes among several training areas; directional taps, droplines, labor to connect and disconnect, converter-rentals, and associated terminal components required to enable reception for all trainees who are not cable television subscribers. It also reflects administrative costs pertinent to video programming and production, but neither to scheduling nor supervising playback, nor to organization of client viewing. Current conditions refers to the preponderant implementation of cable-systems technology--viz., one-way systems and few local networks; the prevailing regulatory structure--viz., a free governmental channel and the requirement to wire an entire franchised area in the absence of prior understanding of intent to do otherwise; and the prevalent practices of public agencies with regard to the integration of cable-television technology into on-going programs--viz., low volume of television production in the delivery of public services.)

Cost Per Client Trained Under Possible Near-Term Conditions. Under possible near-term conditions, the total cost per client trained via training programs delivered over local cable-television networks could be as low as $47 ($28) when training tapes produced in cost-shared governmental studios are bicycled among several areas, programs are distributed on leased channels, and as few as 20 (33) clients require training every six months.[1]

(This per client cable-delivered training cost reflects the cost of video programming and production, and minor programming revision over a three-year period; surface-mail transport of videocassettes among several training areas; distribution at pay-your-own-way cost-related lease rates for parts of network capacity relied upon in the delivery of public training programs; directional taps, droplines, labor to connect and disconnect, converter-rentals, and associated terminal components required to enable reception for all trainees who are not cable television subscribers. It also reflects administrative costs pertinent to video programming and production, but neither to scheduling nor supervising playback, nor to organization of client viewing. Near-term conditions refers to the emergent readiness of several local cable-networks; the possible abolition of free governmental channels, or the contingency where all program time on free channels is committed; and a volume of television production by public agencies sufficient to warrant establishment of a governmental studio, cost-shared by public agencies, municipal departments, and local governments.)

[1] $47 per client trained corresponds to 20 clients; $28 per client trained corresponds to 33 clients. Parentheses are used to associate numerical values throughout the summary and section report.

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FINDINGS DERIVED FROM THE COST ANALYSES FOR THE ALTERNATIVE SCENARIOS

Scenario I. Go-Slow Policy of Continued Experimentation and Initial Implementation: A Bicycling Schedule for an Inter-Urbanized-Area Bicycled-Tapes Network with One Showing in Each of Nine Areas[2]

Go-Slow Policy of Continued Experimentation and Initial Implementation. Over a bicycling schedule designed jointly to permit direct comparison of in-home and guided community-center viewing while effecting a diffusion of cable-delivered training technology across public and private operating divisions in regions of the state, but not designed to minimize costs, the total cost per client (family unit) trained is $34.80. (See section report pp. 17-18). The schedule consists of one showing in each of nine areas over a two-and-one-quarter year period in which 1,422 clients (prospective and tenured foster parents) are trained. For each showing, half the clients view in homes while the other half view in community centers staffed with social service professionals who guide interaction and actuate whatever potentialities for increased effectiveness may be latent in group viewing.)

In-Home Vs. Community Center Viewing. Staff cost in the community centers is the dominant cost for showings in most urbanized areas of this bicycling schedule where information delivery relies on one-way systems and simple home terminals. Except for areas in which cable system penetration is low (less than 36%) and/or the cost of enabling reception for the non-subscriber is high ($53 or more), it is less costly to train clients in homes than in staffed community centers. Generally, the areas unfavorable to home viewing are in the larger cities where sophisticated systems (e.g., dual-trunk dual-feeder systems, all cables active, A/B switch, with or without converter) are under construction or operating at levels well below maturity at the time of showing. Assuming the two viewing conditions are indeed comparably effective, the cost of mistakenly

[2]The same set of tapes is sequentially transported by surface mail among urbanized areas of the network according to a prearranged schedule of showings.

encouraging viewing in staffed community centers for a showing favorable to home viewing can be as high as $24 per client trained, whereas the cost of mistakenly encouraging viewing in homes for a showing favorable to community-center viewing can be as high as $8 per client trained (see section report, pp.20-21 ; and Figure I, curves 1 and 3).

Optimal Sequencing of Showings Among Places. Because the number recruitable (into a cable-delivered training series) and cable system construction and penetration depend on the time and place of showing, the number trained over the complete bicycling schedule can be augmented, and the total cost per family trained over the complete bicycling schedule can be reduced, by optimizing the order of showing among places. An ordering begot from a highest-payoffs-first criterion is generally not optimal. Movement from this ordering toward an approximation to the optimal ordering results in at least a 3.9% reduction in the cost of training the same number of family units, and at least a 4.5% increase in the number of family units who can be trained by means of nine cable-delivered training series shown over the time horizon of the bicycling schedule (see section report, pp. 18-19).

Scenarios II-V. Full Implementation in the Near Term: Six Repetitive Showings in One Area vs. Six Repetitive Showings in One Area Embedded in a Bicycling Schedule with Fifty-Four Showings.

Economies of Scale in a Bicycled-Tapes Network. There are obvious, nonetheless very significant, economies of scale in training that relies upon a bicycled-tapes network. The cost of transporting videocassettes by surface mail among urbanized areas so that programs can be shown to additional clients, and the cost of enabling reception for these clients, are more than offset by the distribution of programming and production costs over a larger number of showings. For example, in alternative scenario II, total cost per client trained is $123.65 over

repetitive showings of a training series every six months in a three-year period during which 64 clients (prospective foster-family units) are trained in a representative urbanized area. Over the same six showings in the same urbanized area during the same three-year period to the same 64 clients, the total cost per family trained drops to $24.69 in alternative scenario IV when training tapes are bicycled to eight other places to be shown once in each place during each of six intershow periods in the representative urbanized area (see section report, pp. 21-24).

If recruitment increases 10%, independent of the adoption of cable-delivered training--that is, the cost of increasing recruitment is not properly chargeable to a combined recruitment, training and licensing program relying on cable communication--the total cost per family trained for the same six showings embedded in a bicycling schedule falls to $23.55 (see section report p. 24 and Figure II).

Scenarios VI and VII. Impact of Future Developments: Single-System Distribution in the Core City vs. Local Electronic Network Distribution in the Extended Urbanized Area when Programs Produced in a Cost-Shared Governmental Studio are Distributed on Leased Channels

Cost-Related Lease Rates. $14.77 and $40.91 are per program-hour cost-related lease rates inferred from a pay-your-own-way pricing policy. They reflect annualized per channel-hour capitalization, cost of debt capital, and plant operating costs appropriate to that part of communication capacity relied upon in the delivery of public information over a single system and local electronic network whose respective capitalizations are $4,673,300 and $11,417,770, two-thirds of which is debt financed in each case (see section report, pp.28-32).

Significance of Distribution Cost on Leased Channels. Based on these pay-your-own-way cost-related lease rates, distribution costs are approximately 28% and 38% respectively of total training costs (exclusive of administrative costs for scheduling playback and organizing client viewing) in the cases of single-

system distribution and local electronic network distribution as single showings in a bicycling schedule in which video programming and production costs are spread over 54 showings (see section report, p. 33).

Electronic Network Economies of Scale Reflected Back to Governmental Leasees. Economies of scale implicit in local cable networking are reflected back to governmental channel-leasees who distribute at pay-your-own-way cost-related lease rates. Distributional and terminal costs to reach additional clients are more than offset by the reduction in programming and production cost per client that results from spreading a fixed programming and production cost per showing over a larger number of clients. With as few as 20(24) clients reached per six-month period when programs are distributed over the network--11(15) more clients per six-month period than can be reached when programs are distributed over the single system--the total cost per client trained is $47.07 ($39.23) which is 9% (24%) less than the comparable figure for single-system distribution (see section report, pp. 33-34).

Cost-Shared Governmental Studio. The establishment of a cost-shared governmental studio with monochrome (color) capabilities is warranted on a cost-of-production basis (excluding administrative costs) if the aggregate television production time of the cost-sharing entities--public agencies, municipal departments, and local governments--averaged over the year, exceeds 11.6 (13.8) hours per week. This volume of production is just sufficient to render amortized production costs equal to those incurred in renting production facilities. At the average weekly indifference (to renting or establishing facilities) volume of 11.6 (13.8) hours, the governmental studio would have 61% (54%) excess capacity (see section report, pp. 34-35).

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POLICY RECOMMENDATIONS

Prefatory Viewpoint. Public agencies select, reject, analyze, synthesize and package information for widely dispersed publics, often disadvantaged, who could be cost-effectively reached on governmental or leased access channels of cable systems or local cable networks. Moreover, the successful employment of cable-television technology in the operations of public agencies will, from that institutional base, add a wide range of public services to the now dominant entertainment use of the television medium.

It is quite clear, from the FCC policies as stated in the 1974 "Clarification of Rules"[3] and from the well-publicized economic constraints on the growth of the cable industry, that there is little likelihood of any further mandatory cross subsidizations of public service uses. In fact, free channel use may be curtailed if, within five years of initial subscriber service, the access experiment is not demonstrated to be in the general public interest.[4] Therefore, at this juncture, it is incumbent on state/local entities to both create video programming to distribute on the government channel, and to develop a state/local institutional structure that will insure the use of cable communication channels, and the use of unfolding telecommunication technologies in general, in the missions of public agencies.

In this context, the subsequent policy recommendation relates to roles, in the case of cable communication, that must be encompassed by this institutional structure. Those recommendations following are derived from the projection of alternative scenarios and the findings of the cost analyses.

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[3]FCC, "Clarification of Rules and Notice of Proposed Rulemaking," Federal Register, Vol. 39, No. 78, Part II, April 22, 1974.

[4]FCC, "Cable Television Service; Cable Television Relay Service," Federal Register, Vol. 37, No. 30, Part II, February 12, 1972.

Role of State Government. Public agencies require assistance in composing their information content in video format; in comprehending the capabilities afforded by video storage and cablecasting technologies, cable and microwave communication technologies, computer control and processing technologies; in interpreting federal rules and deciding what time is opportune to petition in their own interest; in revising old agency programs or formulating new agency programs where telecommunication/computer technologies can be critical adjuncts in the delivery or administration of services by enterprising, innovative, and imaginative application of these technologies to the needs at hand; in the performance of economic analyses for service delivery relying on telecommunication which must involve a knowledge of the economics of the mediating telecommunication industry, if the analysis is to be independent, and if need be, adversative; in defining and marshalling their own demand for telecommunication technologies on the horizon; and in articulating this demand in the market economy in such manner as to impart direction to corporate research and development and product or service formulation.

Agencies can be most efficiently and economically serviced in these respects by well trained and dedicated professionals who constitute an in-house telecommunications comprehensive planning-, technological forecasting and assessment-, and policy formulation-competency, strategically located someplace in state government. In this way the associations, self-images, loyalties, and morale necessary for the state authority to lead the effective utilization and development of telecommunication technologies for public purposes can be built. In this way the state can build the complex organization required to counterbalance and give direction to the universe of corporate giants whose competencies must be brought to bear in support of political choice and social purpose. And it is less costly than contracting out several hundredfold with little carryover of accumulated experience.

Programming. Use of cable-television channels by public agencies logically begins with the composition and one-to-many transmission of video-taped information rather than with live or interactive programming. The very best talent pursuant to training objectives should be recorded and electronically transcribed to video cassettes. By this means, the best efforts can have the widest impact. Most cable companies are now purchasing 3/4" videocassette playback units on which cassettes can be replayed several hundred times.[5]

Production. Production should occur in educational or instructional studios, commercial studios, smaller studios of public broadcasting stations, or smaller local origination studios of cable companies; until the volume of production increases, experience is accumulated, and the way of modular growth toward a governmental studio is clear (see section report, Volume of Television Production that Warrants a Cost-Shared Governmental Studio, pp.34-35).

Centrally Coordinated Programming, Production, and Distribution. Programming, production, and distribution should be centrally coordinated. Central coordination of programming and production will insure that the best talent is captured at minimum production cost, as the central headquarters will be a clearing house for talent and cost of production information. Central coordination of programming will also insure that topical programming is generally useful to all concerned operating divisions throughout the state. Programming and production costs will be spread over the largest number of clients if program distributions are coordinated in accordance with a bicycling schedule for urbanized areas of the state. If regional or county operating divisions are permitted to go it alone, economies of scale implicit in a bicycled-tapes network will be lost (see section report, Economies of Scale in a Bicycled-Tapes Network, pp. 23-24).

[5]TV COMMUNICATIONS, Volume 11, Number 10, October 1974, p. 44.

Optimal Sequence of Showing. In bicycling schedules with more than nine showings and the likelihood of training more than 1600 clients, an approximate solution to the optimal sequence-of-showing problem should be found. In this eventuality, the reduction in per client training cost when showings are near optimally ordered is likely to exceed the per client cost of analysis to find the approximate solution (see section report, Sequencing of Showings Among Places, pp. 18-19).

Conditions of Viewing. With one-way distribution of video-taped programs--except in cases of continued experimentation to directly test in-home viewing and community-center viewing guided by a social service professional--clients in most urbanized areas should be encouraged to view in homes. In places where cable system penetration is low and/or the cost of enabling reception for non-subscribers is particularly high, clients should be encouraged to view in community centers staffed by social service professionals (see section report, In-Home Vs. Community Center Viewing, pp. 20-21).

Public Returns Conferred in Exchange for Use of Public Ways: Who Benefits, How Distributed, Pay-Your-Own-Way Cost-Related Lease Rates, Significance to Public Agencies, Adjusted Pricing Structure. Should the economics of channel scarcity ever prevail in the operation of coaxial cable systems, that is, should the demand for channel space grow faster than the development of marketable optical fibre systems, collective entities whose missions had been sanctioned through the political process (e.g., public agencies, municipal departments, schools) should be insured access at pay-your-own-way cost-related lease rates.

If cable systems are existentially proven to be instrumental in the cost-effective delivery or administration of public health, safety, or social services for example, they would be members of an industry affected with the public interest whose modus vivendi depended on a grant to use the public ways. Federal and

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state intervention would be called for to redesignate the beneficiaries of public returns conferred in exchange for use of public ways in such manner as to promote socially useful applications with which the public interest is affected.

Beneficiaries of the public return should be designated on the criterion of social impact consequent to their use of cable communication. In the absence of a system of social indicators and accounts, this ideal is not rigorously workable; although it does offer crude guidelines by which potential beneficiaries can be identified. For example, system users whose channel use afforded greater equality of opportunity to secure health-care, education, or employment; ameliorated the deprivation of disadvantaged groups (e.g. foster children); or was part of an expanded system of collective choice, might qualify as beneficiaries. Any collective entity, such as public agencies and municipal departments, whose mission had been sanctioned through the political process, would qualify; other private nonprofit entities such as universities and foundations, whose domains of activity clearly transcended private interest and purpose, would qualify as well. Subscribers, who procure entertainment services, would not be foremost beneficiaries, although their claims may still be superordinate vis-a-vis commercial channel leasees. Other private special interest group users such as civic groups would fall in a zone of discretion to be deliberated according to finer criteria as cases arose.

Given the identity of beneficiaries, how are public returns to be distributed? Comparative advantage of cable technology in relative abundance of channels suggests that public returns be distributed in the form of preferential lease rates. With the same fair margin for the company, smaller public returns can be conferred on a larger number of beneficiaries throughout the system life if returns are distributed by means of preferential lease rates rather than grants of equipment or video programming assistance. Whereas several forms of return will undoubtedly be admixed as the industry matures, and equipment grants and programming assistance are supplanted by preferential lease rates,

heavier reliance on preferential lease rates in earlier phases will be less inhibiting to growth. Companies will incur much smaller additional expenditures than for equipment grants or programming assistance, and incentives to sell excess channel capacity will hardly be reduced beyond current levels as even preferential lease rates will provide significant additional revenues.

Beneficiaries would be the only recipients of the public return conferred in exchange for rights to use the public ways. Beneficiaries would pay preferential lease rates; all others would pay market determined lease rates. If preferential lease rates are defined to be pay-your-own-way cost-related lease rates which reflect the actual and complete cost of that part of communication capacity relied upon by the use of a beneficiary, then profits would not accrue to companies from channel leasing by beneficiaries, whereas returns to equity capital would accrue from all other system users. Beyond this grant of public return, no system user, channel leasee or subscriber, would be obligated to subsidize any other user: regulatory authorities would guide the evolution of a rate structure in which there were no cross subsidizations of cost whatsoever.

Lease rates determined in alternative scenarios VI and VII of this section of the report are pay-your-own-way cost-related lease rates for public agencies who would be beneficiaries of the public return. They do not include a return to equity capital but do cover the complete cost of that part of communication capacity relied upon in the delivery of public information (the training series). Rates are determined to allow recovery of annualized per channel-hour capital expenditures, cost of debt capital and plant operating cost for the category of use in which public information (the training series) originates from a location remote from a headend and is distributed system- or network-wide (scenarios VI or VII). Tower-related capital costs and costs of debt capital are not included wherever towers serve solely for the acquisition of broadcast signals. Studio

capital costs and costs of debt capital are not included, as public agency programs are assumed produced in cost-shared governmental studios or rented studio facilities. Distribution capital costs and costs of debt capital are 'through to the subscriber' for the time-averaged fraction of subscribers expected to be public agency clients over the life of the distribution plant, and include for these client-subscribers costs of directional taps, droplines, A/B switches and/or converters. Thus the public agency pays its fair share of both distribution and terminal cost to reach public agency clients who are already cable-television subscribers through a pay-your-own-way cost-related lease rate that reflects costs right through to the television receivers of these client-subscribers. Terminal costs for public agency clients who are not cable-television subscribers are paid in full by the public agency. These costs encompass directional taps, droplines, labor to connect and disconnect, and cost of all terminal components required to enable reception, including rental cost of converters and/or A/B switches for clients who are not cable television subscribers but have been designated to receive a public information service delivered via cable television over a time period of duration, say, several months. (Also see section report: Cost-Related Lease Rates, Equity Considerations in Determining Lease Rates, pp. 29-30; and, see notes 6 and 7 to each of tables VI and VII.)

Even pay-your-own-way (fair share, equity based) cost-related lease rates so determined become a significant component of overall costs incurred by public agencies delivering public information by means of cable television. For the elementary case dealt with in this section of the report in which audio-video-taped information originating from a location remote from a headend is distributed system- or network-wide to one-way converter-dominated (in cost and complexity) terminals, public agency distribution costs based on fair share cost-related

lease rates are approximately 28% and 38% respectively of total training costs (exclusive of agency administrative costs) in the cases of single system and local electronic network distribution (see section report, Significance of Distribution Cost on Leased Channels, p. 33, and also tables VI and VII. annotated).

Where profitable systems are now operating, pricing structures have already been established so that profits are earned from subscription revenues alone; thus, additional revenues beyond fair returns will accrue to companies with even the preferential leasing of channels at cost-related pay-your-own-way rates. Some adjustment in pricing structure--a change in leased-channel rates or subscription rates--or some publicly approved dedication of excess profits would be in order. Excess revenues may be dedicated in varying proportions to financing two-way services, extending plants into less densely populated areas, rebating subscribers, or to raising the level of fair return. The level of fair return must increase for companies who are innovative with regard to social uses of communication capacity as well as managerial and operating organization and technological combinations.[6]

Coordinated Development of Local Cable-Networks. Some state authority should promote and coordinate the development of local cable networks. (Insofar as lattitude of choice still exists, the designs of these networks should reflect the one-to-many and one-to-few audio-video and data communication needs of public entities.) Economies of scale realized through cost-sharing of towers, headends, and computer-control centers can be passed on to public and private channel-

[6]Where cable system profitability is now viewed to be marginal, progressive state agencies or large-city governments may, through near-term leasing, provide sufficient incentives for construction that, ceteris paribus, would not otherwise then occur.

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leasees and subscribers alike (see section report, Electronic Network Economies of Scale Reflected Back to Governmental Leasees, pp.33-34 ; also see Appendix C). Satellite distribution plants, staffed for stand-alone operation, can be owned and/or operated by independent entities, thereby retaining flexibility regarding coexistence of variegated ownership and operating forms in an extended urbanized area.

SECTION REPORT

DESCRIPTION OF ALTERNATIVE SCENARIOS AND FINDINGS OF THE COST ANALYSES

Options Which Compose a Scenario

Alternative scenarios are combinations of program production options, distribution options, and circumstances-of-viewing options.

Production options are production of video tapes in a rented studio; for example, a community college television studio; or production in an equipped and staffed studio cost-shared by state agencies, municipal departments, and local governments.

Distribution options are one-way program distributions on free or leased channels of a single cable system, or the several cable plants in urbanized areas of a bicycled-tapes network. Cable plants in places of an inter-urbanized-area bicycled-tapes network are themselves single cable systems, pairs of interconnected cable systems, or local electronic networks spanning extended urbanized areas. Distribution options also include interactive-program distributions on local electronic networks spanning extended urbanized areas.

Circumstances-of-viewing options are in-home viewing, community center viewing with guided interaction among clients and a social service professional, and participative in-home viewing with participation enabled by the capability to return short coded messages. Circumstances of viewer identity and the basis of projecting the number of viewers are also specified. Viewers are either prospective and licensed foster parents or only prospective foster parents. Projections of the number of family units[1] viewing are based on historical trend data, conjectures of stepped-up recruitment, or discounted recruitment targets of local agencies.

[1]Family unit is used as a generic term to include the few (less than 2%) foster parents who are single.

Three sets of alternative scenarios are presented. The first set of scenarios contains a single alternative.

DESCRIPTION OF SCENARIO I

Scenario I: Go-Slow Policy of Continued Experimentation and Initial Implementation: A Bicycling Schedule for an Inter-Urbanized-Area Bicycled-Tapes Network with One Showing in each of Nine Places

The first scenario is presented as a means of continuing experimentation and of gradually implementing cable-delivered training. It incorporates an experimental direct comparison of in-home viewing and community center viewing with guided interaction, but also allows horizontal diffusion of cable-delivered training across regional and county operating divisions with attendant training of staff. All tenured (licensed) and prospective foster parents who can be recruited into a cable-delivered series are trained. The single alternative of the set is:

Program Production Option	Distribution Option: Distribution System & Channel	Distribution Option: Places & Period of Implementation[2]	Circumstances-of-Viewing Option
I-Rental of existing facilities	inter-urbanized area bicycled-tapes network, free channel	five urbanized areas and four cities; one showing in each place as permitted by the length of the experimental/implemental period beginning 4/75 and terminating at Department of Social Services' discretion	one-half of all recruitables view in homes, one-half of all recruitables view in community centers staffed for guided interaction; prospective and licensed foster family units view; number of family units projected on the basis of historical trend data

[2]Place is indicated because the number recruitable into any cable-delivered training series is an evident function of place. The number recruitable depends upon the geographic distribution of tenured and prospective foster parents across places and the extent of cable system construction within places.

Period is indicated because the cost per family trained is an evident function of time. The number of tenured and prospective foster-parent families available for training is a function of time through time-varying attrition rates and time-varying recruitment efforts. Cable system construction is a function of time which affects the number of potential trainees who can be reached. Cable system penetration is a function of time which affects the cost of connecting trainee households to the cable distribution lines.

FINDINGS OF THE COST ANALYSIS FOR SCENARIO I

Per Client Training Cost with the Go-Slow Policy

Annotated table I is the cost summary for scenario I. The total cost per family trained over the complete bicycling schedule is $34.80.[3] It is computed as the weighted average of the total cost per family trained over all showings of the schedule; weights are the number of family units recruitable, taken as the number trained, in each of the cable-delivered training series shown over the schedule. When tapes are bicycled faster and clients view only in homes, as in scenario IV, for example, per client training costs range from $21 to $27. The differential of $8 to $14 per client trained is the opportunity cost of facilitating slow implementation with continued experimentation.

Sequence of Showings Among Places

Because the number of recruitables and the cost of connecting these recruitables to the cable distribution lines is a function of time in any place (see second paragraph of footnote 2), the possibility exists that the number trained over any bicycling schedule, however short, can be augmented, and the total cost per family trained can be reduced, by changing the period of show in one or more

[3] $34.80 is overly conservative because the average terminal cost per family (column five of table I) is overly conservative for showings in the cities of Grand Rapids/Wyoming, Ann Arbor, and Lansing (see note six to scenario I for a description of average terminal cost per family).

Converters or A/B switches are needed to enable reception in these areas. In this scenario only, the average terminal cost per family reflects the purchase cost of these components rather than their rental, as would be more appropriate for public agency clients who were not cable television subscribers, but who had been designated to receive a public information service (the training series) distributed over cable television channels, and who would thus be connected for a period, say, of duration less than two months, after which time converters and switches could be retrieved.

If, indeed, rental costs of converters and A/B switches are used in place of purchase costs, the average terminal cost per family unit becomes $14.79, $11.20, and $21.07, respectively, for the cities of Grand Rapids/Wyoming, Ann Arbor, and Lansing; and the total cost per family trained over the complete bicycling schedule becomes $32.76.

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places. This is equivalent to changing the order in which the training series is shown among the places of the bicycling schedule.

The particular ordering of scenario I (table I) is based on a highest-payoffs-first criterion. Showings are scheduled first in places where the ratio of number trained to per unit cost of training is large. An ordering based on a highest-payoffs-first criterion is likely to be optimal only if the probability of terminating the schedule after one or two showings is very high. After a few showings, indeed, it may become apparent that cable-delivered training has its place, and that a go-slow policy of continued experimentation and initial implementation ought to be discarded in favor of a policy of full implementation in which showings are more frequent (faster bicycling) among places of the same network or among places of an augmented network.[4]

If it is likely at the outset that a schedule with more than a couple of showings will be executed, the appropriate criterion for ordering is maximization of the expected ratio of number trained to per unit training cost over the length of the schedule. The optimal ordering problem is stochastically formulated in Appendix A, in a very elementary fashion, to reflect uncertainty as to the number of showings that will be executed. It is shown there for the limiting case in which certaintly exists that the nine showings of scenario I will be executed, that movement toward an approximation to the optimal ordering results in at least a $1,920 reduction in the cost of training the same number of family units, and at least an increase of 64 family units who can be trained by means of nine cable-delivered training series shown over the time horizon of the schedule.

[4]The augmented network would include smaller cities served by older cable systems. The comparative cost advantage of cable-delivered training over live classroom instruction in these cities increases because the average cost of connecting client households and enabling reception is less.

In-Home Vs. Community Center Viewing

When programs are distributed on free channels of a one-way party-line system, the cost trade-off between in-home and community center viewing is the exchange of cost to enable reception in client households for the cost of staffing community centers. There is no terminal cost in the case of community center viewing because clients view in dispersed public facilities located near their homes, such as classrooms of schools or community colleges, already equipped with television monitors and connected to the cable distribution lines.

The impact of this cost exchange on total cost per family trained is illustrated in the graphs of figure I, wherein total cost per family trained is shown as a function of the fraction of trainees who view in community centers for select showings of scenario I. The sloping straight line segments of these discontinuous graphs correspond to the transfer of clients from homes to community centers. "Jumps" in total cost per family trained, equal in magnitude to staff cost per viewing room, occur whenever another viewing room must be established to accomodate the influx of trainees. If this staff cost is greater than the foregone cost of enabling reception in homes of clients who now congregate in viewing rooms, total cost per family trained trends upward; whereas the trend is downward if staff cost is less than the foregone cost of enabling reception in homes.

Of all showings in the bicycling schedule of scenario I, those in the Jackson urbanized area and Muskegon city are most favorable to in-home viewing; others are still favorable to in-home viewing, although less so, with the exception of the showing in the city of Lansing where relative costs favor community center viewing.[5] Assuming the two viewing conditions are indeed comparably

[5]This conclusion is based on the rental cost, rather than purchase cost, of converters (see before, footnote number 3).

effective, the cost in Jackson, for example, of mistakenly encouraging viewing in community centers is about $24 per client trained; whereas on the other hand, the cost of mistakenly encouraging in-home viewing in Lansing is about $8 per client trained (see graphs 1 and 3 of figure I).[6]

In Table IA, per client training costs are compared for each of the showings of scenario I for the cases in which half the clients view in homes and half view in staffed community centers, or all view in homes.

DESCRIPTION OF SCENARIOS II THROUGH V

Full Implementation in the Near Term: Six Repetitive Showings in One Area vs. Six Repetitive Showings in One Area Embedded in a Bicycling Schedule with Fifty-four Showings

The second set of alternative scenarios is presented to impart some notion of per family training costs when cable-delivered training is an integral part of on-going recruitment, training, and licensing of foster-care providers. Per

[6]Assuming comparable effectiveness in viewing conditions, in-home viewing should be encouraged for showings in which

$$(1 - \text{PEN (TIME OF SHOW)})\ \text{DAC} < \frac{410\ \lceil \text{NFR}/12 \rceil}{\text{NFR}}$$

where

PEN (TIME OF SHOW) is cable system penetration at the time a training series is shown.
NFR is the number of families recruitable into a cable-delivered training series at the time of show.
DAC is the dropline associated cost per client-household connected. DAC encompasses cost of the dropline itself, labor to connect and disconnect, and cost of all terminal components required to enable reception, including rental cost of converters and A/B switches.
$\lceil \text{NFR}/12 \rceil$ is the smallest integer equal to or granter than NFR/12.

Since $\text{NFR}/12 \leq \lceil \text{NFR}/12 \rceil$, this decision rule is satisfied if

$$(1 - \text{PEN (TIME OF SHOW)})\ \text{DAC} < 410/12 = 34.17$$

The left hand side of the last inequality is the average cost of enabling reception for any client who is not already a cable television subscriber (see note 6 to table I for amplification). $410 is the cost of staffing a viewing room for the duration of the training series (see note 7 to table I for amplification). 12 is the maximum number of families who congregate in any viewing room. The decision rule associated with this inequality would be interpreted to urge viewing in homes if average per client cost of enabling reception is less than per client staff cost when all viewing rooms are filled.

family training costs presented are conditioned on this possiblity materializing in the near term (one to two years). The alternatives of this set are:

Program Production Option	Distribution System & Channel	Place(s) & Period of Implementation	Circumstances-of-Viewing Option
II-Rental of existing facilities	one cable system, free channel	Jackson, Kalamazoo, or Saginaw urbanized area ; repetitive showings in one of these areas every 6 months during the period 4/75-4/78	all recruitables view in homes, only prospective foster family units view, number of family units projected on the basis of historical trend data
III-Rental of existing facilities	one cable system, free channel	Jackson, Kalamazoo, or Saginaw urbanized area ; repetitive showings in one of these areas every 6 months during the period 4/75-4/78	all recruitables view in homes, only prospective foster family units view, number of family units projected on the basis of stepped-up recruitment
IV-Rental of existing facilities	inter-urbanized-area bicycled-tapes network, free channel	five urbanized areas and four cities; periodic showings in each place of the network every 6 months during the period 4/75-4/78[7]	all recruitables view in homes, only prospective foster family units view, number of family units projected on the basis of historical trend data
V-Rental of existing facilities	inter-urbanized-area bicycled-tapes network, free channel	five urbanized areas and four cities; periodic showings in each place of the network every 6 months during the period 4/75-4/78[7]	all recruitables view in homes, only prospective foster family units view, number of family units projected on the basis of stepped-up recruitment

[7] In scenarios IV and V, a complete bicycling schedule is not presented as in scenario I; costs are compiled instead for six showings in one urbanized area when these showings are embedded in the bicycling schedule alluded to among the five urbanized areas and four cities over the time horizon 4/75 to 4/78.

Scenarios IV and V differ essentially from scenario I in the aspects of speed of tape circulation, setting for viewing, foster-parenting experience of viewers, and basis of projecting numbers viewing. Tapes are bicycled fast enough to allow six showings in each place over a three-year period. Viewing occurs only in homes, and only prospective foster parents view. In scenario V, the number viewing is projected on the basis of stepped-up recruitment.

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FINDINGS OF THE COST ANALYSES FOR SCENARIOS II THROUGH V

In scenarios II and IV (tables II and IV), per family training costs over a three-year period in which the training series is shown twice per year in one urbanized area are contrasted with per family training costs when the same showings in the same urbanized area are embedded in a bicycling schedule. Tapes are bicycled fast enough to allow one showing in each of eight other places during the intershow period in the one urbanized area.

A Note on Characteristics of the Show Places

Comparisons are made for each of the urbanized areas of Kalamazoo, Jackson, and Saginaw in the State of Michigan, which may be characterized respectively as having many (112), fewer (78), and few (64) recruitables over the three-year period; and low (23%), high (59%), and growing (37% to 67%) cable-system penetration over the three-year period. Besides penetration, the other cost determinant of enabling reception for clients, dropline-associated cost (see footnote 6 for definition), is relatively low ($25) in each of these areas.

Economies of Scale in a Bicycled-Tapes Network

There are obvious, nonetheless very significant, economies of scale in training that relies upon a bicycled-tapes network. The cost of transporting videocassettes by surface mail among urbanized areas so that programs can be shown to additional clients, and the cost of enabling reception for these clients, are more than offset by the distribution of programming and production costs over a larger number of showings.

As a cursory inspection of tables II and IV reveals, total cost per family trained drops from $83.40 to $26.86, $102.37 to $21.17, and from $123.65 to $24.69 over the six showings in each of the urbanized areas characterized respectively by many recruitables and low penetration, fewer recruitables and high penetration, and few recruitables and growing penetration. Cost reductions of $56.54, $81.20, and $98.96 per client trained, attendant respectively to embedding

showings in each of these three urbanized areas in a bicycling schedule, are not countermanded by the cost of coordinating (not administering) the showings among places of the bicycling schedule. Suppose the cost of coordination to be $5,000 per year (surely not the least upper bound!), then the coordination cost per client trained for the six showings in each of these urbanized areas would be respectively $14.88, $21.37, and $26.04.

Impact of Stepped-Up Recruitment on Per Family Training Cost

In scenarios III and V (tables III and V), the same comparison between per family training costs is presented as that made between scenarios II and IV, except that the number of trainees is projected on alternative bases of increased recruitment rather than by extrapolating historical trends. In tables III and V, the impact of stepped-up recruitment on per family training costs is shown when showings of the training series occur in the urbanized area characterized by few recruitables and growing penetration, and when the same showings are embedded in a bicycling schedule. The cost of increasing recruitment is not accounted for in these tables (nor is there any evidence to suggest that cable-delivered training programs confer additional benefits of incidental recruitment).[8] Impact of stepped-up recruitment on per family training costs is also graphically displayed in Figure II.

COMPARATIVE PER CLIENT COSTS FOR LIVE CLASSROOM TRAINING VS. CABLE-DELIVERED TRAINING AND FOR CASEWORKER TO CLIENT INTERACTION WITH AND WITHOUT CABLE-DELIVERED TRAINING

In the State of Michigan, most foster parents are currently licensed, with incidental training, through a series of interactions with caseworkers. In the past year or so live classroom training has been experimented with on a very small scale. Two more extensive live classroom training series are currently planned

[8]In the field experiment, inquiries regarding foster parenting were incidentally solicited by means of the cable-delivered training programs; none was made.

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in conjunction with Michigan universities. Thus two cost comparisons are pertinent: live classroom training vs. cable-delivered training, and caseworker to client interaction with and without cable-delivered training.

Among the five or so live classroom training series conducted in the past year, only the particular series carried out at Delta College, from which the training tapes for the field experiment were composed, is suitable for this comparison of per client training costs between live classroom training and cable-delivered training: the same instructors and discussion groups that occurred live in the classroom setting were captured on the training tapes; and, the per family cable-delivered training costs presented in the cost summaries of this section of the report are based on taped programming with similar information content and format. The total cost of a live classroom training series comparable to the one conducted at Delta lies somewhere between $1,188 and $1,608 with the range attributable to variation in the cost of discussion group leadership.[9]

If the cost comparison between the technologies of live classroom training and cable-delivered training is made in the context of scenarios IV and V, that is, an alternative future in which a training series is conducted every six months in each of many places throughout the State, then the number of clients (family units) that can be trained during the period of any one series, regardless of the technology of training, is the number projected to be recruitable into that series. Based on historical trend data, that number is eleven if the comparison is made between a live classroom training series and a cable-delivered

[9]The lower extremity of the range is for leaders who are agency staff members with four years' experience and a master's degree in social work; the upper extremity is for leadership procured at a high market rate.

Aside from discussion-group leadership, most of the remaining cost is incurred for preparation and presentation by instructors. Programming cost in the cable-delivered case covers about twice as many hours for instructional preparation and presentation as is covered by the $1,188 - $1,608 range for live classroom instruction, the increase made in view of the leverage afforded by a bicycled-tapes network to multiply returns from well-prepared instructional materials.

training series in the Saginaw urbanized area (a currently representative area in terms of the cost of enabling reception for client viewers). Thus the cost per client (family unit) trained in a live classroom setting in Saginaw is somewhere between $108 and $146, whereas the average cost per client trained in the Saginaw urbanized area over the six cable-delivered training series of scenario IV is approximately $25.[10]

In the more traditional series of interactions between caseworker and client, training and licensing are commingled. This series of interactions has an orientation and home-study phase.

In the orientation phase the caseworker explains what foster parenting is, what the prospective foster parents can expect, what kind of children might be foster children, what a license is, why there are licensing laws, and what rules you have to meet to be a foster parent. Paperwork associated with intake sheets (demographics), medical forms, and references is initiated in the orientation period. Incidental training occurs as the caseworker answers questions raised by the prospective foster parents. A decision is made whether to continue.

The home-study phase has two parts: evaluation of the adequacy of the physical premises, and evaluation of the inter- and intra-personal capabilities of the prospective foster parents. Evaluating the adequacy of the physical premises includes review of fire safety, sanitation, heating, ventilation, lighting, sleeping quarters, furnishings, play space, and other physical characteristics of the premises bearing upon the health, safety, and welfare of foster children. Evaluating interpersonal and intrapersonal capabilities in-

[10]Inasmuch as there are economies in less preparation by the same instructors, for later series, when the live instruction is classroom-delivered every six months over a three-year period as is the case with cable-delivered training in scenario IV, the comparison is skewed to the detriment of live instruction. The $108-$146 range includes two hours of instructional preparation for each of five instructors and one hour of preparation for each of two other instructors. The range of $95-$146 specified in the overall findings of the summary reflects these potential economies. For five of the six classroom series, about half as many preparatory hours are assumed in arriving at the $95 lower bound.

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cludes review of family interactions, discipline patterns, rigidities, temperaments, motivations for foster parenting, and other intangible attributes bearing upon good foster parenting. Again incidental training occurs as the caseworker answers questions raised by the prospective foster parents during the course of the home study.

The cost of caseworker time and travel and of supportive clerical and supervisory time for the orientation and home-study phases constitutes the cost of licensing and ranges from $124 to $175 per client (family unit) licensed. Because the incidental training that occurs is so intertwined in the licensing process and varies from case to case, it is not possible to extricate the cost chargeable to training. It is possible however to roughly estimate that were a training series--live classroom instruction or cable-delivered--integrated into the licensing process, the orientation and home-study phases could be reduced from 6-10 hours (exclusive of desk work and travel) to 4-6 hours, with an attendant cost reduction of approximately $15-$30 per family licensed.[11] It can be inferred then from the cost analysis of scenario IV, wherein per client cable-delivered training costs range from $21 to $27, that cable-delivered training could be integrated into the caseworker to client licensing process at little if any additional cost except for internal agency costs incurred in administrating cable-delivered training in the context of a bicycling schedule as in scenario IV (internal administrative costs are not reflected in any of the cost analyses).

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[11]The rough estimate of reduced time is based on discussions with the program manager of foster-parent services. It is converted to dollars at the pay rate of a basic caseworker with a B.A. degree.

DESCRIPTION OF SCENARIOS VI AND VII

Impact of Future Developments: Single-System Distribution in the Core City vs. Local Electronic Network Distribution in the Extended Urbanized Area when Programs Produced in a Cost-Shared Governmental Studio Are Distributed on Leased Channels

The third set of alternative scenarios is presented to illuminate the impact of possible future developments on the cost-effectiveness of delivering public information over cable systems when cable-delivery is a part of on-going public agency programs. Developments considered are the abolition of free channels or the contingency wherein all free time is committed, the emergence of local cable-networks, and the increasing volume of television production in the public sector. The alternatives of this set are:

Program Production Option	Distribution Option: Distribution System & Channel	Distribution Option: Places & Period of Showing	Distribution Option: Circumstances-of-Viewing Option
VI-Cost-shared governmental studio	inter-urbanized-area bicycled-tapes network, leased channel	nine urbanized areas; periodic showings in each area of the network every 6 months during the period 1/76-1/79 (costs compiled for one-way single-system distribution in Lansing city, 10/78-1/79)	all recruitables view in homes, only prospective foster family-units view, number of family-units projected on the basis of discounted recruitment targets of local agencies
VII-Cost-shared governmental studio	inter-urbanized-area bicycled-tapes network, leased channel (one or more areas of the bicycled-tapes network is itself served by a local electronic network spanning the extended urbanized area)	nine urbanized areas; periodic showings in each area of the network every 6 months during the period 1/77-1/80 (costs compiled for one-way distribution over an electronic network in the Lansing extended urbanized area, 10/79-1/80)	all recruitables view in homes, only prospective foster family-units view, number of family-units projected on the basis of discounted recruitment targets of local agencies

FINDINGS OF THE COST ANALYSES FOR SCENARIOS VI AND VII

Cost-Related Lease Rates

Cost-related lease rates are given below for a particular class of users and category of use. The class of users considered is the class of collective public entities whose missions have been sanctioned through the political process (e.g. public agencies, municipal departments, schools). The particular category of use is that of one-to-many system- or network-wide distribution from an origination location remote from a headend.

For this category of use, rates are determined on the basis of an average cost pricing policy for that part of system or network capacity relied upon in the delivery of public information (the training series). Public agencies pay their own way: there are no internal cross-subsidizations of cost of any kind whatsoever.

Per program-hour lease rates of $14.77 and $40.91 respectively are sufficient to recover annualized per channel-hour capitalizations, costs of debt capital, and plant operating costs for the single system and local cable network of scenarios VI and VII, whose respective capitalizations are $4,673,300 and $11,417,770, two-thirds of which is debt financed in each case.[12]

Equity Considerations in Determining Lease Rates

Tower-related and antenna costs are not included in capital costs for single-system distribution, because in the system of scenario VI, these costs are attributable solely to the acquisition of broadcast signals; nor are the capital costs of company studios included in either scenario VI or VII, since public agency programs are produced in a cost-shared governmental studio or

[12]See notes number 6 in both tables VI and VII for a complete exposition of the method by which these rates were determined. See the same notes and Appendix C for detailed capital costs, details regarding the determination of annualized per channel-hour cost of debt capital, and the details of plant operating costs. See the text following for equity considerations and the value orientation underpinning these determinations of pay-your-own-way cost-related lease rates.

rented facilities. Capital costs for single-system and network distributions are 'through to the subscriber' for the time-averaged fraction of subscribers expected to be public agency clients over the system or network live, and do include for these client-subscribers directional taps, droplines, A/B switches and/or converters. Because channel lease rates reflect costs through to the client-subscriber, public agencies would pay their fair share to reach cable-television subscribers who are also public agency clients.[13]

Plant operating costs in scenario VII are sufficient for staffing of satellite plants as stand-alone organizational entities. Whereas economies of scale are not thereby fully exploited, flexibility is preserved with regard to variegated ownership and/or operating forms across distribution plants within the extended urbanized area spanned by the network.

Beneficiaries and Distribution of Public Returns

Cost-related lease rates are not determined to include a return to equity capital. What is the justification for this pricing policy?

While excess channel capacity is the prevailing condition, the question of what lease rate will be asked of a public agency may be moot, although a fair or just price might be offered in the expectation that the same basis of pricing will obtain in a seller's market.

The benefits structure has evolved thus far like a sculpture that is chiseled away piece by piece as the very process of lending it shape and form unfolds

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[13]The full cost of connecting, disconnecting, and enabling reception for clients who are not subscribers is also borne by the public agency. See note number 7 in both tables VI and VII.

Notice that the inclusion of distribution costs through to the client-subscriber derives from a pay-your-own-way policy rather than a piggyback policy at the subscriber terminal. A cable communication system is viewed as a community resource shared by diverse users. Any user must at least pay costs for those parts of system capacity used. For the public agency, these costs include a per channel-hour share of the dropline and subscriber terminal equipment for each client-subscriber. Since current pricing structures do not conform to this viewpoint, payment of pay-your-own-way cost-related lease rates in this sense would necessitate a revision in pricing structures.

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(benefits to the city fathers, schools, public-access proponents, etc.). The process of the past is irreversible: 'freebees' are like water droplets past the dam. This incremental forging will likely continue, for no single entity's breadth is great enough to impose a wise design. Nevertheless it seems some normative guideposts are missing.

In a deeper sense, some equity norm or ideal is needed that is sufficiently large to encompass the pleas of all special contenders for privileged use. There is considerable obfuscation in answering the primeval question: who should sit at the banquet table, or in this case, who should be the beneficiaries of the public return conferred in exchange for rights to use the public ways.

Beneficiaries of the public return should be designated on the criterion of social impact consequent to their use of cable communication. In the absence of a system of social indicators and accounts, this ideal is not rigorously workable; although it does offer crude guidelines by which potential beneficiaries can be identified. For example, system users whose channel use afforded greater equality of opportunity to secure healthcare, education, or employment; ameliorated the deprivation of disadvantaged groups (e.g., foster children); or was part of an expanded system of collective choice, might qualify as beneficiaries. Any collective entity, such as public agencies and municipal departments, whose missions had been sanctioned through the political process, would qualify; other private nonprofit entities such as universities and foundations, whose domains of activity clearly transcended private interest and purpose, would qualify as well. Subscribers, who procure entertainment services, would not be foremost beneficiaries, although their claims may still be superordinate vis-a-vis commercial channel leasees. Other private special interest group users such as civic groups would fall in a zone of discretion to be deliberated according to finer criteria as cases arise.

Given the identity of beneficiaries, how are public returns to be distributed? Comparative advantage of cable technology in relative abundance of channels suggests that public returns be distributed in the form of preferential lease rates. With the same fair margin for the company, smaller public returns can be conferred on a larger number of beneficiaries throughout the system life if returns are distributed by means of preferential lease rates rather than grants of equipment or video programming assistance. Whereas several forms of return will undoubtedly be admixed as the industry matures, and equipment grants and programming assistance are supplanted by preferential lease rates, heavier reliance on preferential lease rates in earlier phases will be less inhibiting to growth. Companies will incur much smaller additional expenditures than for equipment grants or programming assistance, and incentives to sell excess channel capacity will hardly be reduced beyond current levels as even preferential lease rates will provide significant additional revenues.

If returns are indeed distributed by means of preferential lease rates that are defined to be pay-your-own-way cost-related lease rates, then profits would not accrue to companies from channel leasing by beneficiaries. Because the criterion of social impact implies that public agencies whose missions had been sanctioned through the political process would be designated as beneficiaries, cost-related lease rates for their uses would be justified.

Significance of Distribution Cost on Leased Channels

Production facility costs are spread over several programming entities when video programs are produced in a cost-shared governmental studio. Programming and production costs are spread over many clients when video cassettes are bicycled among urbanized areas, the more so when these areas are served by local electronic networks. Because production facility costs can be spread over several programming entities, and programming and production costs can be spread over many clients, distirubtion costs become a signficiant component of total cost per client (family unit) trained, particularly when only a small number of clients (9-20) are reached during any one showing of the training series.

Distribution costs per client are the product of per program-hour cost-related lease rates and an overall program time of 8-and-3/4 hours for the seven 1-and-1/4 hour sessions of the training series, the product being spread over the number of clients reached. Distribution costs per client trained are $14.36 and $17.90 in scenarios VI and VII in which nine and twenty clients are reached in the showings for which costs are summarized in tables VI and VII. Programming and production costs are spread over fifty-four showings in each of these scenarios. When programs are produced in a governmental monochrome studio which is cost shared in such measure that production costs are the same as those incurred when renting (the indifference share), these distribution costs are respectively 28% and 38% of total cost per client trained.

Electronic Network Economies of Scale Reflected Back to Governmental Leasees

Economies of scale implicit in local cable networking are reflected back to governmental channel-leasees who distribute at cost-related lease rates. Distributional and terminal costs to reach additional clients are more than offset by the reduction in programming and production cost per client that results from spreading a fixed programming and production cost per showing over a larger number of clients. With as few as 20(24) clients reached per six-month period

when programs are distributed over the network--11(15) more clients per six-month period than can be reached when programs are distributed over the single system--the total cost per client trained is $47.07 ($39.23), which is 9%(24%) less than the comparable figure for single-system distribution.

Two qualifications are in order regarding economies of scale. Firstly, as implied in the discussion on cost-related lease rates, plants in peripheral districts and outlying localities of the network are overstaffed so that they might be owned and/or operated as stand-alone entities. Hence some scale economies are traded to preserve options for smaller companies or municipal entities who may be more responsive and equitable in their treatment of channel users and subscribers alike.

Secondly, inasmuch as there is more than one corporate decisional entity involved in the completion of the network, overall network costs are likely to be higher than those presented in Appendix C. Redundant plant and equipment will be introduced as companies strive to maintain the technical integrity of their own systems. Because the network design that underpins costs in scenario VII is devoid of duplicative plant and equipment, and also because systems of this network design span political jurisdictions, it would not be realized in the absence of a supervening authority to coordinate both corporate actors and local franchising entities. If actors are not coordinated, overall network costs would be higher and economies of scale reflected back to governmental leasees would be lower.

Volume of Television Production that Warrants a Cost-Shared Governmental Studio

The establishment of a cost-shared governmental studio with monochrome (color) capabilities is warranted on a cost-of-production basis (excluding administrative costs) if the aggregate television production time of the cost-sharing entities--public agencies, municipal departments, and local governments--averaged over the year, exceeds 11.6(13.8) hours per week. This volume of production is

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just sufficient to render amortized production costs equal to those incurred in renting production facilities. The studio that is assumed cost shared in determining this average weekly indifference (to renting or establishing facilities) volume has an annual equipment amortization, staff cost, and operating cost of $90,700($107,370), which is sufficient for production of near-broadcast quality programs. The rented studio is assumed available at $150 per hour. At the average weekly indifference volume of 11.6(13.8) hours, the governmental studio would have 61%(54%) excess capacity.

Sensitivity of total cost per client (family unit) trained to average weekly volume of production is shown graphically in figure III. Curves are drawn for the cases of scenarios VI and VII in which a training series produced in 13 equivalent studio-hours in a cost-shared monochrome studio is distributed on a leased channel.

Future Addendum: Two-Way vs. One-Way Local Electronic Network and Uncoordinated vs. Orchestrated Development

In an addendum to this report to be published later, two other alternative scenarios will be presented. Both impart information on the impact of future developments on cost-effectiveness, and are thereby additions to the third set of alternatives already introduced. In the first of these additions, the increase in cost-related lease rates is determined, which results when electronic network capabilities are upgraded to permit return of short coded-messages, by which viewing becomes participative. In the second of these additional alternatives, the impact on lease rates is reflected when telecommunication developments in extended urbanized areas are uncoordinated and patchworked, rather than orchestrated and integrated. The two additional alternative scenarios are:

Program Production Option	Distribution Option: Distribution System & Channel	Distribution Option: Place & Period of Showing	Circumstances-of-Viewing Option
VIII-Cost-shared governmental studio equipped with a control and response-processing computer	inter-urbanized-area bicycled interactive-tapes network, leased channel (one or more areas of the bicycled interactive-tapes network is itself served by a local electronic network that spans the extended urbanized area and has been realized through coordinated development)	nine urbanized areas; periodic showings in each area of the network every 6 months during the period 1/77-1/80 (costs compiled for two-way distribution over an electronic network in the Lansing extended urbanized area, 10/79-1/80	all recruitables view in homes from which short coded messages can be returned, only prospective foster family units view, number of family units projected on the basis of discounted recruitment targets of local agencies
VIII-Cost-shared governmental studio equipped with a control and response-processing computer	inter-urbanized-area bicycled interactive-tapes network, leased channel (one or more areas of the bicycled interactive-tapes network is itself served by a local electronic network that spans the extended urbanized area and has been realized through uncoordinated development)	nine urbanized areas; periodic showings in each area of the network every 6 months during the period 1/77-1/80 (costs compiled for two-way distribution over an electronic network in the Lansing extended urbanized area, 10/79-1/80	all recruitables view in homes from which short coded messages can be returned, only prospective foster family units view, number of family units projected on the basis of discounted recruitment targets of local agencies

ANNOTATED TABLES

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Table I, Annotated

COST SUMMARY FOR ALTERNATIVE SCENARIO I: A BICYCLING SCHEDULE FOR AN INTER-URBANIZED-AREA BICYCLED-TAPES NETWORK WITH ONE SHOWING IN EACH OF NINE PLACES (PROSPECTIVE AND TENURED FOSTER PARENTS, HALF OF WHOM VIEW IN HOMES, HALF OF WHOM VIEW IN COMMUNITY CENTERS STAFFED WITH SOCIAL SERVICE PROFESSIONALS)[1]

Recruitment area[2]	Period of show[3]	Projection of the number of family units recruitable into a cable-delivered training series[4]	Programming and production cost per family[5]	Average terminal cost per family[6]	Average staff cost per family[7]	Total cost per family trained[8]	Figure of merit[9]
Kalamazoo urbanized area/Battle Creek city.[10]	4/75-7/75	381	$ 2.10	$ 9.09	$18.29	$29.49	12.92
Flint urbanized area	7/75-10/75	248	$ 3.23	$ 7.25	$18.20	$28.68	8.65
Saginaw urbanized area	10/75-1/76	217	$ 3.69	$ 6.94	$18.90	$29.53	7.35
Jackson urbanized area	1/76-4/76	119	$ 6.76	$ 5.13	$17.28	$29.17	4.08
Bay City urbanized area/Midland city[10]	4/76-7/76	132	$ 6.07	$ 7.31	$18.64	$32.01	4.12
Grand Rapids city/ Wyoming city[10]	7/76-10/76	152	$ 5.29	$26.83	$18.91	$51.02	2.98
Ann Arbor city	10/76-1/77	99	$ 8.07	$21.00	$20.65	$49.71	1.99
Lansing city	1/77-4/77	42	$19.01	$22.91	$19.46	$61.38	0.68
Muskegon city	4/77-7/77	32	$25.22	$ 3.88	$25.82	$54.92	0.58

(notes on following pages)

Table IA
COMPARISON OF PER FAMILY TRAINING COSTS FOR THE BICYCLING SCHEDULE OF SCENARIO I WITH AND WITHOUT COMMUNITY-CENTER VIEWING

Area	Period of Show	Total Cost Per Family Trained: Half view in homes, half view in community centers staffed with social service professionals	Total Cost Per Family Trained: All view in homes
Kalamazoo urbanized area/Battle Creek city	4/75-7/75	$29.49	$20.28
Flint urbanized area	7/75-10/75	$28.68	$17.73
Saginaw urbanized area	10/75-1/76	$29.53	$17.57
Jackson urbanized area	1/76-4/76	$29.17	$17.02
Bay City urbanized area/Midland city	4/76-7/76	$32.01	$20.69
Grand Rapids city/ Wyoming city[1]	7/76-10/76	$38.98	$34.86
Ann Arbor city[1]	10/76-1/77	$39.92	$30.47
Lansing city[1]	1/77-4/77	$59.54	$61.15
Muskegon city	4/77-7/77	$54.92	$32.98
Average per family training cost over the complete bicycling schedule		$32.76	$22.95

[1]Costs for these places reflect rental, rather than purchase, of converters and A/B switches (see footnote number 2 to the text of the section report).

EXPLANATORY NOTES TO THE COST SUMMARY FOR SCENARIO I

[1]For the mathematical relationships underlying all computations, please see Appendix A.

[2]Where at lease 68% of the population in an urbanized area (census definition) is passed by cable, the urbanized area is specified; otherwise, the central city in which nearly all homes are passed is specified.

[3]The same set of video tapes is retained in an area for a period of 3 months before being transported by surface mail to the next area on the bicycling schedule. Month/year dates indicated should be read as first-of-the-month dates.

[4]This is a linear projection of the number of foster family- and combination-home licensees. It is computed by adding the product of the average net quarterly change in licensees, and the number of quarters lapsed from the reference date to the quarter of show, to the number of licensees of record on the reference date, 4/74. The number of licensees on record as of the reference date in each of the recruitment areas is extracted from printouts BG-039, BG-038, and BG-040 of the Michigan Department of Social Services.[a]

Wherever the cable-service area is smaller than the recruitment area, the projected number of licensees is corrected by a multiplicative factor equal to the fraction of the recruitment area population residing in the area passed by cable. Whenever construction would not be complete by a period of show, the projected number of licensees is corrected by a multiplicative factor equal to the fraction of the cable plant energized by the period of show. Both these corrections rest on the approximation that foster parents are geographically distributed as the population at large; whereas this is not so, exactness would require detailed comparison of geographic plots of foster parent homes with cable company strand maps for each area of the bicycling schedule.

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[a]For further comments on the adequacy of the data base for forecasting and the methodology of forecasting, please see Appendix A.

It is further presumed that all licensees at the beginning of a show period are recruitable for training irrespective of prior-foster-parenting experience. Half the trainees view in their homes while the other half view in classrooms staffed by a social service professional who guides interaction.

[5]This is the per family cost of preparation and presentation by instructors, discussion-group leadership, and programming revision over the bicycling-schedule period (programming cost); of videotape stock, and the rental of an equipped and staffed public studio for production, editing, and dubbing (production cost); and of transporting tapes among areas of show. The total programming and production cost ranges from $4,466 to $8,426 for a series of programs requiring 35 hours of instructors' time, 30 hours of leaders' time, and 13 equivalent hours of studio use. Costs for programs produced in smaller facilities with lower overhead and part-time or student help will fall in the lower part of the range; programs produced in larger facilities with professional staffs will be in the upper part of the range. The programming, production, and tape transport cost for this instructional series, based on the production charges incurred in the Bay City/Midland experiment, is $7,182.[b]

[6]It is assumed that foster parents subscribe to cable television as the population at large; thus, one minus the cable system penetration (ratio of subscribers to households passed) is the fraction of foster-parent households which must be connected to the distribution lines. The cost of the connecting line, labor (for connection and disconnection), and all components to enable reception is called the dropline-associated cost. It is the cost of enabling reception in any foster-parent household. The dropline-associated cost multiplied by the product of the number of families who view in homes and the fraction which is one minus the cable system penetration is the total cost of enabling reception in all foster-parent households. Average terminal cost per family is this total cost spread over the sum of family units who view in homes, whether already subscribers or requiring connection, and family units who view in classrooms.

[b]An allowance of $565 for administrative expenses associated with the programming and production process is included in the $7,182 figure.

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Cable system penetration used in this formulation is that of the reference date, 4/74, for systems in Kalamzoo, Battle Creek, Flint, Jackson, Bay City, Midland, and Ann Arbor. These systems have matured to ultimate penetration by this date.[c] Penetration in Saginaw and Muskegon is based on linear growth from penetration on the reference date toward the company-projected penetration for 4/77. Penetration in Wyoming is based on linear growth from penetration on the reference date to ultimate penetration of 50% attained by 4/77. Construction in Grand Rapids and Lansing is sectionalized; penetration is summed over sections turned on. Intra-section penetration is assumed to climb linearly to 50% ultimate penetration within 18 months from the date on which the section was energized. Penetration data on the reference date and company projections for 4/77 are taken from "A Preliminary Report on Cable Television and its Impact on Michigan," published by the Joint Legislative Cable Television Study Committee of the State of Michigan. The 50% figures for ultimate penetration in Lansing, Wyoming, and Grand Rapids are based on discussions with system managers.

[7]Half the number of families recruitable into a cable-delivered training series in the period of show are assumed to view in dispersed public facilities located near their homes. Classrooms of elementary and secondary schools, community colleges, and universities, currently equipped with television monitors and connected to the cable distribution plant, serve as viewing rooms. One social service professional is assigned to each viewing room to guide interaction and to actuate the potential for

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[c]All except those in Midland and Ann Arbor will have been operating more than 3 years on the reference date. Midland and Ann Arbor systems will have been operating 25 and 23 months respectively, and may not have matured to ultimate penetration. If not, average terminal costs for these areas are overstated.

Crandall and Fray offer a very plausible explanation that controverts Park's finding of an 18-month maturation period to ultimate penetration. Their explanation is based on the sectionalized nature of cable system construction and energization. Piecewise construction gives rise to a discontinuous penetration function which Park did not encompass when specifying his logit-function forecasting model. See Crandall and Fray, pp. 268-273, The Bell Journal of Economics and Management Science, Spring '74.

positive reinforcement and shared feelings. This person is paid at $10/hour for seven 2¼-hour sessions, 7 hours of preparation, and 14 hours of travel time per 7-session series. Each session is presumed to consist of 1¼-hours viewing, 3/4-hour interaction, and ¼-hour break (midway in the viewing period). The social service professional also receives $42 per training series for travel expenses (20 miles each way per session at $0.15 per mile). No more than 12 family units congregate in any viewing room. Thus, the total staff cost is approximately $410 per viewing room multiplied by the number of viewing rooms. The number of viewing rooms is the smallest integer equal to or greater than the quotient of the number of recruitable family units divided by 12. The average staff cost per family is the total staff cost spread over all recruitable family units irrespective of their place of viewing.

[8]The total cost per family trained is the sum (with round-off error) of programming and production cost per family, average terminal cost per family, and average staff cost per family.

[9]The number of recruitable families divided by the total cost per family trained is regarded as a figure of merit for the relative attractiveness of areas in which the training series might be shown during any one period. The areas of show are ordered in this bicycling schedule such that in each of the sequential show periods the area indicated has the highest figure of merit of those areas not assigned to a prior show period. (This is <u>not</u> the optimal ordering. An approximation to the optimal ordering, a discussion of the ordering problem, and graphs exhibiting the time dependence of the figure of merit for each of the show areas can be found in Appendix A.) The figure of merit is a stronger index than cost per family trained; because, for example, an area served by a cable system with high penetration and a smaller number of recruitable families may have the same cost per family trained as an area with lower penetration and a larger number of recruitable families. The high penetration drives the average terminal cost per family down to offset other higher per family costs due to fewer recruitables. The figure of merit is more sensitive to

the number of recruitable families than cost per family trained and is a better register of showings in which larger numbers of recruitables can be trained at lower per unit training costs.

[10]Simultaneous showings are indicated in the Kalamazoo urbanized area and the city of Battle Creek, the Bay City urbanized area and the city of Midland, and in the cities of Grand Rapids and Wyoming, because of the current or anticipated readiness of electronic interconnection links between the places of these paired areas prior to the period of show. In the case of Kalamazoo/Battle Creek, simultaneous distribution is predicated on the selection of program show times during which the single microwave channel from Kalamazoo to Battle Creek is available. Interconnection links between the other places of a pair allow, or are planned to allow, the transmission of several channels thereby imposing a lesser constraint on the selection of show times. The paired cities of Ann Arbor and Ypsilanti, and Lansing and East Lansing, may also be interconnected by the period of show although this possibility is not reflected in the bicycling schedule presented above.

Table II, Annotated

COST SUMMARY FOR ALTERNATIVE SCENARIO II: REPETITIVE SHOWINGS IN ONE OF THE URBANIZED AREAS OF KALAMAZOO, JACKSON, OR SAGINAW (PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

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Place[2]	Average number of prospective foster-family units recruitable per 6-month period[3]	Number of prospective foster-family units recruitable over the period of repetitive showings[4]	Programming and production cost per family[5]	Average terminal cost per family[6]	Total cost per family trained[7]	Figure of merit[8]
Kalamazoo	18.74	112	$ 64.15	$19.25	$ 83.40	1.34
Jackson	12.98	78	$ 92.12	$10.25	$102.37	0.76
Saginaw	10.74	64	$112.27	$11.38	$123.65	0.52

1-Costs are derived for one showing of the training series in the same urbanized area every 6 months over the period from 4/75 to 4/78. Tapes could be repetitively shown every 3 months at the same costs except for personnel charges which may be incurred in supervising playback. These supervisory costs would be insignificant compared to programming, production, and terminal costs, and are not accounted for in this cost summary.

2-If the number of recruitables is forecast on the basis of historical trends, these are the three most promising places, since they have had the largest growth of licensees in the past two years. (Because there is reason to believe that the entire foster-family recruitment structure is in transition, operational forecasts, if trend-based, ought to be modulated by futuristic and theoretical conceptions culled from change-agent actors in the field. Future-oriented conceptions may point toward places other than those listed here.)

3-This estimate of the average number of prospective foster-family units recruitable into a cable-delivered training series in any 6-month period is twice the estimate of the average net quarterly gain in licensees in the urbanized area over the period 7/72 through 4/74. The estimate of average net quarterly gain in licensees is derived from licensee data for Michigan counties contained in a study by the Social Services Evaluation and Analysis division of the Michigan Department of Social Services.

4-Six times the average number of recruitable family units per 6-month period (rounded to the closest integer).

5-Cost of preparation and presentation by instructors, discussion-group leadership, programming revision over the 3-year period, rental of an equipped and staffed studio, and video-tape stock, the total of which is spread over the number of prospective foster-family units trained over the period of repetitive showings.

6-Total cost of enabling reception for all prospective foster-family units who are not cable-television subscribers, spread over the number of prospective foster-family units trained during the period of repetitive showings.

7-Programming and production cost per family plus average terminal cost per family.

8-Number of prospective foster-family units trained during the period of repetitive showings divided by the total cost per family trained.

Table III, Annotated

COST SUMMARY FOR ALTERNATIVE-SCENARIO III: REPETITIVE SHOWINGS IN THE SAGINAW URBANIZED AREA UNDER ALTERNATIVE PROJECTIONS OF INCREASED RECRUITMENT (PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

Projected increase in recruitment	Average number of prospective foster-family units recruitable per 6-month period[2]	Number of prospective foster-family units recruitable over the 3-year period of repetitive showings[3]	Programming and production cost per family[4]	Total cost per family trained[5]
0%	10.74	64	$112.27	$123.65
5%	11.28	67	$107.24	$118.62
10%	11.81	70	$102.64	$114.02
20%	12.89	77	$ 93.31	$104.69
30%	13.96	83	$ 86.57	$ 97.95
40%	15.04	90	$ 79.83	$ 91.21
50%	16.11	96	$ 74.84	$ 86.22
75%	18.80	112	$ 64.15	$ 75.53
100%	21.48	128	$ 56.13	$ 67.51
200%	32.22	193	$ 37.23	$ 48.61

1-One showing every 6 months over the period 4/75 to 4/78.

2-For the reference case (no increase in recruitment), twice the estimate of average net quarterly gain in licensees over the period 7/72 through 4/74.

3-Six times the average number of prospective foster-family units recruitable into a cable-delivered training series shown every 6 months.

4-Cost of preparation and presentation by instructors, discussion-group leadership, programming revision over the 3-year period, rental of an equipped and staffed studio, and video-tape stock, spread over the projected number of recruitables for the 3-year period of repetitive showings.

5-Programming and production cost per family plus average terminal cost per family. Average terminal cost per family is constant in any given area over a fixed period of time and is equal to $11.38 in the Saginaw urbanized area over the period from 4/75 to 4/78.

Table IV, Annotated

COST SUMMARY FOR ALTERNATIVE SCENARIO IV: REPETITIVE SHOWINGS IN ONE OF THE URBANIZED AREAS OF JACKSON, KALAMAZOO, OR SAGINAW WHEN TAPES ARE BICYCLED AMONG EIGHT OTHER PLACES DURING INTERSHOW PERIODS (PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

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Place[2]	Average number of prospective foster-family units recruitable per 6-month period[3]	Number of prospective foster-family units recruitable over the 3-year period of repetitive showings[4]	Programming and production cost per family for 6 of 54 showings[5]	Average terminal cost per family	Total cost per family trained[7]	Figure of merit[8]
Kalamazoo	18.74	112	$ 7.61	$19.25	$26.86	4.17
Jackson	12.98	78	$10.92	$10.25	$21.17	3.68
Saginaw	10.74	64	$13.31	$11.38	$24.69	2.59

1-Costs are derived for 6 of 54 showings of the training series in one place of a bicycled-tapes network; that place is either Jackson, Kalamazoo, or Saginaw. The complete network has the same 9 places as the bicycled-tapes network of alternative scenario I. Showings occur in each of the 9 places twice a year at 6-month intervals over a 3-year period. The 6 showings for which costs are compiled are showings in the same urbanized area--Jackson, Kalamazoo, or Saginaw--occurring every 6 months, beginning in the second quarter of 1975 and ending in the second quarter of 1978. (Tapes are bicycled among the 8 other places of the network during each intershow period. Frequency of showing in each place of the network could be increased from 2 showings per year at 6-month intervals to four showings per year at 3-month intervals at a net incremental cost of about $100 for additional videocassettes and cassette mailings.)

2-If the number of recruitables is forecast on the basis of historical trends, these are the three most promising places, since they have had the largest growth of licensees in the past two years. (Because there is reason to believe that the entire foster-family recruitment structure is in transition, operational forecasts, if trend-based, ought to be modulated by futuristic and theoretical conceptions culled from change-agent actors in the field. Future-oriented conceptions may point toward places other than those listed here.)

3-This estimate of the average number of prospective foster-family units recruitable into a cable-delivered training series in any 6-month period is twice the estimate of the average net quarterly gain in licensees in the urbanized area over the period 7/72 through 4/74. The estimate of average net quarterly gain in licensees is derived from licensee [illegible] for Michigan counties contained in a study by the Social Services Evaluation and Analysis division of the Michigan Department of Social Services.

4-Six times the average number of recruitable family units per 6-month period (rounded to the closest integer).

5-Cost of preparation and presentation by instructors, discussion-group leadership, programming revision over the 3-year period, rental of an equipped and staffed studio, video-tape stock, and surface-mail transport of videocassettes; the total of which is distributed over the 54 showings of the schedule, the resultant cost per showing aggregated

for 6 showings and spread over the number of prospective foster-family units trained in the one urbanized area during the 3-year period of repetitive showings.

6-Total cost of enabling reception for all prospective foster-family units who are not cable-television subscribers, spread over the number of prospective foster-family units trained in the one urbanized area during the 3-year period of repetitive showings.

7-Programming and production cost per family for 6 of 54 showings plus average terminal cost per family.

8-Number of prospective foster-family units trained in the one urbanized area during the 3-year period of repetitive showings divided by the total cost per family trained.

Table V, Annotated

COST SUMMARY FOR ALTERNATIVE SCENARIO V: REPETITIVE SHOWINGS IN THE SAGINAW URBANIZED AREA UNDER ALTERNATIVE PROJECTIONS OF INCREASED RECRUITMENT WHEN TAPES ARE BICYCLED AMONG EIGHT OTHER PLACES DURING INTERSHOW PERIODS (PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

Projected increase in recruitment	Average number of prospective foster-family units recruitable per 6-month period[2]	Number of prospective foster-family units recruitable over the 3-year period of repetitive showings[3]	Programming and production cost per family for 6 of 54 showings[4]	Total cost per family trained[5]
0%	10.74	64	$13.31	$24.69
5%	11.28	67	$12.72	$24.10
10%	11.81	70	$12.17	$23.55
20%	12.89	77	$11.06	$22.44
30%	13.96	83	$10.26	$21.64
40%	15.04	90	$ 9.47	$20.85
50%	16.11	96	$ 8.87	$20.25
75%	18.80	112	$ 7.61	$18.99
100%	21.48	128	$ 6.66	$18.04
200%	32.22	193	$ 4.41	$15.79

1-One showing in the Saginaw urbanized area every 6 months beginning in the second quarter of 1975 and ending in the second quarter of 1978 with tapes bicycled among 8 other places for one showing in each place during each intershow period in Saginaw.

2-For the reference case (no increase in recruitment), twice the estimate of average net quarterly gain in licensees in the Saginaw urbanized area over the period 7/72 through 4/74.

3-Six times the average number of prospective foster-family units projected to be recruitable into a cable-delivered training series shown every 6 months in the Saginaw urbanized area.

4-Cost of preparation and presentation by instructors, discussion-group leadership, programming revision over the 3-year period, rental of an equipped and staffed studio, video-tape stock, and surface-mail transport of video-cassettes; the total of which is distributed over 54 showings, the resultant cost per showing aggregated for 6 showings and spread over the projected number of recruitables in the Saginaw urbanized area during the 3-year period of repetitive showings.

5-Programming and production cost per family for 6 of 54 showings plus average terminal cost per family. Average terminal cost per family is constant in any given area over a fixed period of time and is equal to $11.38 in the Saginaw urbanized area over the period from 4/75 to 4/78.

Table VI, Annotated

COST SUMMARY FOR ALTERNATIVE SCENARIO VI: SINGLE-SYSTEM DISTRIBUTION IN LANSING CITY IN THE LAST QUARTER OF 1978 (AS A REPRESENTATIVE SHOWING IN A BICYCLED-TAPES NETWORK IN WHICH A TRAINING SERIES PRODUCED IN RENTED FACILITIES OR A GOVERNMENTAL STUDIO IS PERIODICALLY SHOWN IN EACH PLACE OF THE NETWORK ON A FREE OR LEASED CHANNEL TO PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

Production option/ distribution channel[2]	Production cost for 1 of 54 showings[4]	Programming and production cost per family for 1 of 54 showings[5]	Distribution cost per family[6]	Total cost per family trained[7]
Rental of studio facility/ free channel	$66.11 - 114.26 (93.31)	$12.44 - 18.31 (15.76)	$ 0.00	$38.90 - 44.77 (42.22)
Rental of studio facility/ leased channel	$66.11 - 114.26 (93.31)	$12.44 - 18.31 (15.76)	$14.36	$53.26 - 59.13 (56.58)
Governmental studios/ free channel				
Monochrome studio Cost-share factors:[3]				
1/46.51 (11.63 hrs/week production, indifference share)	$47.12 - 66.11 (55.18)	$10.12 - 12.44 (11.10)	$ 0.00	$36.58 - 38.90 (37.56)
1/60 (15 hrs/week production)	$43.27 - 57.99 (49.52)	$ 9.65 - 11.45 (10.41)	$ 0.00	$36.11 - 37.91 (36.87)
1/80 (20 hrs/week production)	$39.95 - 51.00 (44.64)	$ 9.25 - 10.59 (9.82)	$ 0.00	$35.71 - 37.05 (36.28)
Color studio Cost-share factors:[3]				
1/55.06 (13.77 hrs/ week production, indifference share)	$46.40 - 66.11 (54.57)	$10.03 - 12.44 (11.03)	$ 0.00	$36.49 - 38.90 (37.49)
1/60 (15 hrs/week production)	$45.05 - 63.14 (52.55)	$ 9.87 - 12.08 (10.78)	$ 0.00	$36.33 - 38.54 (37.24)

cont'd				
1/80 (20 hrs/week production)	$41.28 - 54.85 (46.91)	$ 9.41 - 11.06 (10.10)	$ 0.00	$35.87 - 37.52 (36.56)
Governmental studio/ leased channel				
Monochrome studio Cost-share factors:[3]				
1/46.51 (11.63 hrs/ week production, indifference share)	$47.12 - 66.11 (55.18)	$10.12 - 12.44 (11.10)	$14.36	$50.94 - 53.26 (51.92)
1/60 (15 hrs/week production	$43.27 - 57.99 (49.52)	$ 9.65 - 11.45 (10.41)	$14.36	$50.47 - 52.27 (51.23)
1/80 (20 hrs/week production)	$39.95 - 51.00 (44.64)	$ 9.25 - 10.59 (9.82)	$14.36	$50.07 - 51.41 (50.64)
Color studio Cost-share factors:[3]				
1/55.06 (13.77 hrs/week production, indifference share)	$46.40 - 66.11 (54.57)	$10.03 - 12.44 (11.03)	$14.36	$50.85 - 53.26 (51.85)
1/60 (15 hrs/week production)	$45.05 - 63.14 (52.55)	$ 9.87 - 12.08 (10.78)	$14.36	$50.69 - 52.90 (51.60)
1/80 (20 hrs/week production)	$41.28 - 54.85 (46.91)	$ 9.41 - 11.06 (10.10)	$14.36	$50.23 - 51.88 (50.92)

EXPLANATORY NOTES TO THE COST SUMMARY FOR SCENARIO VI

[1]This showing in the city of Lansing in the last quarter of 1978 is regarded as one showing in a bicycling schedule extending over the period 1/76-1/79. Tapes are bicycled among urbanized areas fast enough to allow one showing of the training series every six months in each area.[a] As in alternative scenarios I, IV, and V, there are nine areas in the bicycled-tapes network. Thus there are 18 showings of the tapes each year (two in each of the nine areas); 54 showings over the three-year period of the schedule. Programming and production costs are distributed over these 54 showings.

The maximum duration of the bicycling schedule (and the maximum spreading of television programming and production costs when tapes are bicycled at maximum speed) is limited to the period in which the programmed information remains relevant. Programming and production costs include a 10% surcharge for minor revision in programming content and format over the three-year period of the schedule. At the end of three years, major changes are assumed called for, and the programming life is considered expired.[b]

[2]Rental of studio facility refers to the rental of an instructional, educational, or cable company origination studio, its staff, and all necessary equipment for production of the training series. Governmental studio refers to a studio whose policies of operation are set by a governmental entity, and which is cost-shared by

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[a]For a net incremental expenditure of about $100 on additional video cassettes and cassette mailings, the intershow period in any area could be reduced to about three months. With this schedule of shorter intershow periods, a session of the training series could be cablecast for five days before the tapes for this session had to be transported by surface mail to the next area on the schedule.

[b]The physical life of the tape is not a constraining variable. 3/4" video-cassettes may be replayed more than a hundred times without serious degradation in picture quality, since all 3/4" playback units now marketed are equipped with dropout compensators.

state agencies, municipal departments, and local governments. Free channel refers to the local government or educational channels mandated at least until March 1977, or to the cable company origination channel, if programs can be shown thereon. Leased channels are included to ascertain the impact of the possible abolition of free channels at some time subsequent to March 1977, or the contingency where all free channel time has been committed.

[3]The cost-share factor is the fraction of annual studio use that would be attributable to the production of the foster parent training series were production to occur in a governmental studio. A cost-share factor of 1/60, for example, can be interpreted to mean that 59 other television productions would be expected during the year, and that the average studio use required by these productions is expected to be the same as that required for production of the foster parent training series. Since the production of the training series requires about 13 equivalent studio-hours,[c] this degree of cost sharing would imply an annual studio utilization of 780 hours for television production, or an average weekly production level of 15 hours. The total cost that would be distributed over these productions is the amortized equipment capitalization and the annual operating cost of a facility which is staffed for 1,560 hours of production per year, or 30 hours of production per week. In this situation, the studio utilization level would be 50% (780/1560 X 100) of the capacity for which the studio was staffed.[d]

The indifference share is the cost-share factor that renders the public producer (Department of Social Services) indifferent to whether the public information (foster parent training series) is produced in a rented or governmental studio. This degree

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[c]An equivalent studio-hour is a period of studio use, e.g. for editing or dubbing tapes, in which less than full studio staff and/or equipment are employed for more than an hour, but for which the charge is the same as the charge for one hour of live production requiring more complete use of equipment and staff.

[d]Cost-share factors of 1/60 and 1/80 correspond respectively to studio utilization levels of 50% and 67%. They are selected merely to display costs for some other shares greater than the indifference share (see next paragraph of text); they have no other significance.

of cost sharing results in costs attributable to production of the public information (foster parent training series) which would be the same as those costs incurred were the information (series) produced in a rented facility.

[4](For the rationale behind spreading production costs over 54 showings, see note number one to this cost summary.)

Production costs are costs incurred for videotape stock, use of studio facilities and equipment, and employment of studio staff in the production of television programming. Whether production is in a rented facility or governemental studio, the cost of video tape stock is $1,620.

The cost range shown for rented facilities is based on 13 equivalent studio-hours of production at $150 to $350 per hour.[e] Costs for programs produced in smaller facilities with lower overhead and part-time or student help will fall in the lower part of the range; programs produced in larger facilities with professional staff members will be in the upper part of the range. The figure in parentheses is based on a $263 per hour rental which includes administrative expenses of the programming agency associated with programming and production. It is regarded as a conservative nominal production cost when programs are produced in rented facilities.

The cost ranges shown for the governmental studio are based on annual equipment amortizations, staff costs, and other annual operating costs ranging from $43,000 to $90,700 for the monochrome studio, and from $48,750 to $107,370 for the color studio. Ranges are attributable to equipment options offering varying levels of output and quality when televising and recording in studio or in the field, editing video tapes or integrating filmed materials, and when using video special effects or character generations. They are also attributable to varying compositions of studio staffs and changes in operating costs which are geared to equipment and staff levels.

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[e]This is a conservative rental estimate. The cable television information center estimates the rental variation to be from $100 to $300. See Local Government Uses of Cable Television, published in 1974 by the Cable Television Information Center, The Urban Institute, 2100 M. Street, N.W., Washington, D.C. 20037.

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The figures in parentheses are based on annual equipment amortizations, staff costs, and operating costs of $63,252 and $73,061, respectively, for the particular monochrome and color studio packages presented in Appendix B. $63,252 and $73,061 are regarded as the nominal annual costs of maintaining a governmental monochrome or color studio.

The indifference cost-share factors are computed as the factors which when multiplied by the maximum annual costs of maintaining a governmental studio ($90,700 for monochrome, $107,370 for color) result in that cost share which is the same as the cost of program production for 13 equivalent studio-hours in a rented facility at an hourly rental of $150.[f]

The following relations will assist those who wish to track the computation of production cost per showing:

Rented facility--

$$\text{Production cost per showing} = 1620/54 + \frac{13 \text{ (hourly rental for an equipped and staffed studio)}}{54}$$

Governmental studio--

$$\text{Production cost per showing} = 1620/54 + \frac{\text{annual equipment amortization} + \text{annual staff cost} + \text{annual operating costs}}{54} \times \text{cost-share factor}$$

[f] $150 per hour is very close to the rental charge incurred in the production of the training series in the Bay City/Midland experiment, and is nearly the low extremity in the range of rental rates likely to be incurred. Rather than the nominal rate of $263 per hour, it is the appropriate rate to be used in determining the indifference share since a cost-share determined at the nominal rate will be higher than the cost of producing in some rented facility (viz., the one that charges $150 per hour), in which case, the programming agency would not be indifferent but would regret its decision to establish a governmental studio.

Maximum annual costs of maintaining a governmental studio, rather than nominal costs, are used in determining the indifference cost-share factor because the particular studio packages of Appendix B which underlie the computation of nominal costs do not include time base correctors, nor 2" record/reproduce video-tape machines with electronic editing capabilities, found today in most existing studio facilities.

[5]This is the sum of production, programming, programming revision, and tape transport costs, spread over the number of showings in the bicycling schedule and over the number of prospective foster parents projected to be recruitable into a cable-delivered training series shown in the city of Lansing in the last quarter of 1978.

Production costs are described in note 4, preceding.

Programming cost is $1,490 for an instructional series requiring 35 hours of instructor's time at $34 per hour, and 30 hours of discussion leader's time at $10 per hour.

Programming revision cost is 10% of programming and production cost.

Tape-transport cost is about $9 per showing for parcel post carriage of three 6-pound and three 3-pound packages of videocassettes between any two Michigan cities.

The number of prospective foster-family units recruitable into a cable-delivered training series shown every six months in the city of Lansing is not computed as a function of the estimate of average net quarterly change in licensees, determined from historical trend data, as is the case with showings in prior scenarios. A telephone survey of agencies recruiting in the city of Lansing was conducted to determine the number of recruitables. Agencies were surveyed because historical data over the period 7/72-4/74 shows Lansing to be a city whose foster parent population had diminished. Were this trend to continue, no need would exist for any training program intended only for prospective foster parents.

The telephone survey produced the following information for the Lansing area:

Agency	Number of licensees as of 4/74	Target number of replacement and new licensees in the period 4/74-4/75
Probate Court	approximately 140	approximately 60
Ingham County Department of Social Services	" 65	" 12
Family & Child Services	" 30	" 25
Catholic Social Services	" 20	" 5

Based on this data, the expected increase in licensees in the period 4/74-4/75, computed by weighting agency targets by the share of licensees as of 4/74, is 39.33.[g] This is equivalent to an average quarterly increase in licensees of 3.75%. Assuming the same percentage increase in the city of Lansing as in the metropolitan area in the year 4/74-4/75, the average quarterly change in licensees in the city of Lansing would be 4.61 (there were 123 licensees in the city of Lansing as of 3/74).[h] Assuming that these agencies can do as well in the more distant future--at least to the extent of recruiting the same absolute number of new families--as they expect to do in the forthcoming year, 4.61 is used as the estimate of average net quarterly change on which the number of recruitables for the showing in the city of Lansing in the last quarter of 1978 is based. The number of recruitables is taken as twice this estimate since two quarters will have elapsed since the training series was last shown (showings occur every six months). Rounded to the nearest integer number of families, 9 foster-family units are projected to be recruitable into a cable-delivered training series shown in the city of Lansing in the last quarter of 1978.

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[g]In the absence of other data, the share of licensees as of 4/74 is taken as a harsh proxy for a discount factor that is reflective of past attainment of targeted goals.

[h]The assumption that the percentage increase in licensees in the city of Lansing will be the same as that in the Lansing metropolitan area in the coming year is conservative because there exists a pressing need for new homes in the central city and because the majority of old homes are located in outlying areas.

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[6]The distribution cost per family of $14.36 is the product of a cost-related lease rate of $14.77 per program-hour and an overall video program time of 8-and-3/4 hours (7, 1¼-hour training sessions) spread over the 9 recruitable foster-family units.

The per program-hour cost-related lease rate of $14.77 is the sum of an $11.66 per channel-hour lease rate for downstream transmission everywhere throughout the distribution plant, and $3.11 per channel-hour lease rate for upstream transmission from an origination location remote from the headend.

Downstream and upstream cost-related channel-hour lease rates for public agency use are determined to recover capital expenditures, the cost of debt capital, and plant operating costs for that part of system capacity used in delivering public information (the training series); and are determined in such manner that all similar uses of a category (e.g. originations from any location which are to be distributed system-wide) are charged for at the same rate.[1]

Total capital expenditures to be recovered from public agency channel leasing over a ten-year system life are the capital costs of headend equipment, distribution plant, test equipment and spare parts for an entire stand-alone Lansing system. Tower-related and antenna costs are not included as, in this case of single-system distribution, they are attributable solely to the acquisition of broadcast signals. Capital costs of company studios are not included, as public agency programs are produced in rented facilities or a cost-shared governmental studio. Capital costs of distribution are "through to the subscriber" for the time-averaged fraction (over the system life) of subscribers expected also to be public agency clients, and include

[1]The lease rate for public agency uses is not determined to include return to equity capital. Policy considerations relative to this omission are discussed in the text of the section report.

directional taps, droplines, A/B switches and converters for these client-subscribers.[j]

These capital expenditures to be recovered over a ten-year life amount to $4,673,330 for the Lansing stand-alone system.[k] The annualized capitalization of $467,330 is prorated over 78 video channels. The public agency lease rate reflects the annualized capitalization per channel distributed over 1,560 program-hours per year (30 program-hours per week), except that part of annualized capitalization per channel corresponding to the terminal costs of public agency clients expected already to be cable-television subscribers is distributed over 156 program-hours per year (3 program-hours per week).[l]

The annualized cost of debt capital is found as the equal-payments solution of a simple discounted debt-flow model.[m] Two-thirds of capital expenditures are assumed to

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[j]Thus, the public agency pays its fair share for distributing information through to the cable-television subscriber who is also a public agency client by way of a channel lease rate which reflects distribution costs through to the client-subscriber. The full cost of connecting, enabling reception, and disconnecting clients who are not subscribers is also borne by the public agency. See note 7, following.

[k]$4,523,300 + $150,000. $4,523,300 is the capital cost of distribution including distribution costs through to the subscriber for the time-averaged fraction of subscribers expected also to be public agency clients (cost-conservatively guesstimated as one-tenth over the life of the system). It is computed as $4,338,500 + .1($1,848,000 wherein $4,338,500 and $1,848,000 are respectively the capital costs for the Lansing distribution plant and the terminal costs for all subscribers at ultimate penetration, both of which are detailed in Appendix C. .1($1,848,000) is the distribution cost from the directional taps to the television receivers (herein also called the terminal cost) of the time-averaged fraction (0.1) of subscribers expected also to be public agency clients.

The capital cost for headend equipment, test equipment and spare parts for an entire stand-alone Lansing system is taken as $150,000.

All cost estimates are very conservative (see note 12, Appendix C).

[l] The resultant annualized capitalization per channel-hour for the Lansing stand-alone system is $5.21.

[m]The annualized cost of debt capital, ACDC, is found from

$$ACDC \sum_{n=2}^{11} \frac{1}{(1+i)^n} = \sum_{n=1}^{11} \frac{CDC_n}{(1+i)^n}$$

where CDC_n is the actual cost of debt capital in year n as derived from assumed debt incurrence and retirement schedules, and where i is the simple annual interest rate taken as 13%.

be debt financed. Debt is incurred in the second year of a two-year construction period which precedes the start of a ten-year life and is retired in equal amounts in the last four years of the ten-year life. The annualized cost of debt capital is prorated over 78 video channels. The public agency lease rate reflects the annualized cost of debt capital per channel distributed over 1,560 program-hours, except that part of annualized cost of debt capital per channel corresponding to the terminal costs of public agency clients expected already to be cable-television subscribers is distributed over 156 program-hours.[n]

Plant operating costs to be recovered from channel leasing by public agencies include parts of the salary of the chief technician, maintenance technicians, and bench technicians; part of annual material costs for maintenance and repair; part of annual vehicular rental; part of annual pole rentals and tower-site rental; and part of the annual cost of electric power.[o] The annualized share of these plant operating costs to be recovered is the aggregate annual plant operating cost for one of the 78 channels. The public agency lease rate reflects the annualized plant operating cost per channel distributed over 1,560 program-hours.[p]

The downstream channel-hour rate of $11.66 is the sum of the annualized per channel-hour capitalization ($5.21), the annualized per channel-hour cost of debt capital ($4.94), and the annualized per channel-hour plant operating cost ($1.51).

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[n]The resultant annualized cost of debt capital per channel-hour for the Lansing stand-alone system is $4.94.

[o]In this determination of lease rate, these plant operating costs are taken as:

Technicians:	1/78 ($73,696) per channel-year
Maintenance and repair:	1/78 ($18,950) per channel-year
Vehicular rental:	1/78 ($ 9,240) per channel-year
Pole and tower-site rentals:	1/78 ($70,650) per channel-year
Electric Power:	1/78 ($11,620) per channel-year

[p]The annualized plant operating cost per channel-hour for the Lansing stand-alone system is $1.51.

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The upstream channel-hour rate of $3.11 is one-quarter of the sum of the annualized per channel-hour capitalization, cost of debt capital, and plant operating cost, plus a $300 allowance per channel-year, spread over 1,560 program hours, for company administrative expenses incurred in negotiating and scheduling channel leasing by public agencies ($11.66/4 + $300/1560). The sum of annualized per channel-hour costs is divided by four because costs for an upstream channel can be recovered from simultaneous use of the same channel on each of the system trunks for upstream transmission of different information, and because the Lansing stand-alone system is assumed to have one hub and four main trunks.[9]

[7]The total cost per family trained is the sum of the programming and production cost per family described in note number 5, the distribution cost per family described in note 6, and the average terminal cost per family trained.

The average terminal cost per family trained is $26.46 for a showing in the city of Lansing in the last quarter of 1978. It is the total cost of enabling reception for all trainees who are <u>not</u> cable-television subscribers spread over all prospective foster-family units who are trained. The total terminal cost is calculated as the product of the dropline-associated cost (cost of enabling reception for any household), one minus the cable system penetration (the fraction of trainee households that must be connected), and the number of households with families to be trained.

In this calculation of average terminal cost per family trained, cable system penetration is that of the system in the city of Lansing in the last quarter of 1978. By that time, three of the four sections of the Lansing system will have been energized for more than 18 months, and thus are assumed to have reached ultimate penetration which is taken as 0.5. The fourth section will have been operating only 12 months; its

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[9]Channel leasees in a similar class, e.g. public agency users, originating from any location remote from the headend, would be charged the same upstream rate regardless of the distance between the location of the originating facility and the headend since the transmission would completely occupy the upstream channel on one trunk to the exclusion of all other users whether the location of the originating facility is close to or far from the headend.

penetration is taken as (12/18)0.5. The overall system penetration in the city of Lansing in the last quarter of 1978 is the average penetration across the four sections and is equal to 0.46.

The dropline associated cost used in this calculation of average terminal cost is $49 which is appropriate for a dual-trunk dual-feeder plant with an A/B switch in an arrangement where the switch is leased for the period in which the viewer is a public agency client designated to receive a public information service.

Table VII, Annotated

COST SUMMARY FOR SCENARIO VII: LOCAL ELECTRONIC NETWORK DISTRIBUTION IN THE LANSING AREA IN THE LAST QUARTER OF 1979 (AS A REPRESENTATIVE SHOWING IN A BICYCLED-TAPES NETWORK IN WHICH A TRAINING SERIES PRODUCED IN RENTED FACILITIES OR A GOVERNMENTAL STUDIO IS PERIODICALLY SHOWN IN EACH PLACE OF THE NETWORK ON A FREE OR LEASED CHANNEL TO PROSPECTIVE FOSTER PARENTS ONLY WHO VIEW IN HOMES)[1]

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Production option/ distribution channel[2]	Production cost for 1 of 54 showings[4]	Programming and production cost per family for 1 of 54 showings[5]	Distribution cost per family[6]	Total cost per family trained
Rental of studio facility/ free channel	$66.11 - 114.26 (93.31)	$5.60 - 8.24 (7.09)	$ 0.00	$29.77 - 32.41 (31.26)
Rental of studio facility/ leased channel	$66.11 - 114.26 (13.31)	$5.60 - 8.24 (7.09)	$17.90	$47.67 - 50.31 (49.16)
Governmental studios/ free channel				
Monochrome studio Cost-share factors:[3]				
1/46.51 (11.63 hrs/week production, indifference share)	$47.12 - 66.11 (55.18)	$4.55 - 5.60 (5.00)	$ 0.00	$28.72 - 29.77 (29.17)
1/60 (15 hrs/week production)	$43.27 - 57.99 (49.52)	$4.34 - 5.15 (4.68)	$ 0.00	$28.51 - 29.32 (28.85)
1/80 (20 hrs/week production)	$39.95 - 51.00 (44.64)	$4.16 - 4.77 (4.42)	$ 0.00	$28.33 - 28.94 (28.59)
Color studio Cost-share factors:[3]				
1/55.06 (13.77 hrs/ week production, indifference share)	$46.40 - 66.11 (54.27)	$4.51 - 5.60 (4.96)	$ 0.00	$28.68 - 29.77 (29.13)
1/60 (15 hrs/week production	$45.05 - 63.14 (52.55)	$4.44 - 5.44 (4.85)	$ 0.00	$28.61 - 29.61 (29.02)
1/80 (20 hrs/week production	$41.28 - 54.85 (46.91)	$4.23 - 4.98 (4.55)	$ 0.00	$28.40 - 29.15 (28.72)

cont'd

Governmental studio/ leased channel				
Monochrome studio Cost-share factors:[3]				
1/46.51 (11.63 hrs/ week production, in- difference share)	$47.12 - 66.11 (55.18)	$4.55 - 5.60 (5.00)	$17.90	$46.62 - 47.67 (47.07)
1/60 (15 hrs/week production)	$43.27 - 57.99 (49.52)	$4.34 - 5.15 (4.68)	$17.90	$46.41 - 47.22 (46.75)
1/80 (20 hrs/week production)	$39.95 - 51.00 (44.64)	$4.16 - 4.77 (4.42)	$17.90	$46.23 - 46.84 (46.49)
Color studio Cost-share factors:[3]				
1/55.06 (13.77 hrs/ week production, in- difference share)	$46.40 - 66.11 (54.57)	$4.51 - 5.60 (4.96)	$17.90	$46.58 - 47.67 (47.03)
1/60 (15 hrs/week production)	$45.05 - 63.14 (52.55)	$4.44 - 5.44 (4.85)	$17.90	$46.51 - 47.51 (46.92)
1/80 (20 hrs/week production)	$41.28 - 54.85 (46.91)	$4.23 - 4.98 (4.55)	$17.90	$46.30 - 47.05 (46.62)

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EXPLANATORY NOTES TO THE COST SUMMARY FOR SCENARIO VII

[1]The electronic local network is the local cable network specified in Appendix D. Lansing area refers to a geographic area larger than the Lansing urbanized area but smaller than the Lansing metropolitan area as these terms are defined by the Bureau of the Census (see Appendix C for a map of the area covered).

This showing in the Lansing area in the last quarter of 1979 is regarded as one showing in a bicycling schedule extending over the period 1/77-1/80. Tapes are bicycled among urbanized areas fast enough to allow one showing of the training series every six months in each area.[a] Several of the urbanized areas of the bicycled-tapes network are themselves assumed served by a local electronic network. As in alternative scenarios I, IV, V and VI, there are nine areas in the bicycled-tapes network. Thus there are 18 showings of the tapes each year (two in each of the nine areas); 54 showings over the three-year period of the schedule. Programming and production costs are distributed over these 54 showings.

The maximum duration of the bicycling schedule (and the maximum spreading of television programming and production costs when tapes are bicycled at maximum speed) is limited to the period in which the programmed information remains relevant. Programming and production costs include a 10% surcharge for minor revision in programming content and format over the three-year period of the schedule. At the end of three years, major changes are assumed called for, and the programming life is considered expired.[b]

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[a]For a net incremental expenditure of about $100 on additional video cassettes and cassette mailings, the intershow period in any area could be reduced to about three months. With this schedule of shorter intershow periods, a session of the training series could be cablecast for five days before the tapes for this session had to be transported by surface mail to the next area on the schedule.

[b]The physical life of the tape is not a constraining variable. 3/4" video-cassettes may be replayed more than a hundred times without serious degradation in picture quality, since all 3/4" playback units now marketed are equipped with dropout compensators.

[2]Rental of studio facility refers to the rental of an instructional, educational, or cable company origination studio, its staff, and all necessary equipment for production of the training series. Governmental studio refers to a studio whose policies of operation are set by a governmental entity, and which is cost-shared by state agencies, municipal departments, and local governments. Free channel refers to the local government or educational channels mandated at least until March 1977, or to the cable company origination channel, if programs can be shown thereon. Leased channels are included to ascertain the impact of the possible abolition of free channels at some time subsequent to March 1977, or the contingency where all free channel time has been committed.

[3]The cost-share factor is the fraction of annual studio use that would be attributable to the production of the foster parent training series were production to occur in a governmental studio. A cost-share factor of 1/60, for example, can be interpreted to mean that 59 other television productions would be expected during the year, and that the average studio use required by these productions is expected to be the same as that required for production of the foster parent training series. Since the production of the training series requires about 13 equivalent studio-hours,[c] this degree of cost sharing would imply an annual studio utilization of 780 hours for television production, or an average weekly production level of 15 hours. The total cost that would be distributed over these productions is the amortized equipment capitalization and the annual operating cost of a facility which is staffed for 1,560 hours of production per year, or 30 hours of production per week. In this situation, the studio utilization level would be 50% (780/1560 X 100) of the capacity for which

[c]An equivalent studio-hour is a period of studio use, e.g. for editing or dubbing tapes, in which less than full studio staff and/or equipment are employed for more than an hour, but for which the charge is the same as the charge for one hour of live production requiring more complete use of equipment and staff.

the studio was staffed.[d]

The indifference share is the cost-share factor that renders the public producer (Department of Social Services) indifferent to whether the public information (foster parent training series) is produced in a rented or governmental studio. This degree of cost sharing results in costs attributable to production of the public information (foster parent training series) which would be the same as those costs incurred were the information (series) produced in a rented facility.

[4](For the rationale behind spreading production costs over 54 showings, see note number one to this cost summary.)

Production costs are costs incurred for videotape stock, use of studio facilities and equipment, and employment of studio staff in the production of television programming. Whether production is in a rented facility or governmental studio, the cost of video tape stock is $1,620.

The cost range shown for rented facilities is based on 13 equivalent studio-hours of production at $150 to $350 per hour.[e] Costs for programs produced in smaller facilities with lower overhead and part-time or student help wil fall in the lower part of the range; programs produced in larger facilities with professional staff members will be in the upper part of the range. The figure in parentheses is based on a $263 per hour rental which includes administrative expenses of the programming agency associated with programming and production. It is regarded as a conservative nominal production cost when programs are produced in rented facilities.

The cost ranges shown for the governmental studio are based on annual equipment amortizations, staff costs, and other annual operating costs ranging from $43,000 to

[d]Cost-share factors of 1/60 and 1/80 correspond respectively to studio utilization levels of 50% and 67%. They are selected merely to display costs for some other shares greater than the indifference share (see next paragraph of text); they have no other significance.

[e]This is a conservative rental estimate. The cable television information center estimates the rental variation to be from $100 to $300. See Local Government Uses of Cable Television, published in 1974 by the Cable Television Information Center, The Urban Institute, 2100 M. Street, N.W., Washington, D.C. 20037.

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$90,700 for the monochrome studio, and from $48,750 to $107,370 for the color studio. Ranges are attributable to equipment options offering varying levels of output and quality when televising and recording in studio or in the field, editing video tapes or integrating filmed materials, and when using video special effects or character generations. They are also attributable to varying compositions of studio staffs and changes in operating costs which are geared to equipment and staff levels. The figures in parentheses are based on annual equipment amortizations, staff costs, and operating costs of $63,252 and $73,061, respectively, for the particular monochrome and color studio packages discussed in Appendix B. $63,252 and $73,061 are regarded as the nominal annual costs of maintaining a governmental monochrome or color studio.

The indifference cost-share factors are computed as the factors which when multiplied by the maximum annual costs of maintaining a governmental studio ($90,700 for monochrome, $107,370 for color) result in that cost share which is the same as the cost of program production for 13 equivalent studio-hours in a rented facility at an hourly rental of $150.[f]

The following relations will assist those who wish to track the computation of production cost per showing:

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[f] $150 per hour is very close to the rental charge incurred in the production of the training series in the Bay City/Midland experiment, and is nearly the low extremity in the range of rental rates likely to be incurred. Rather than the nominal rate of $263 per hour, it is the appropriate rate to be used in determining the indifference share since a cost-share determined at the nominal rate will be higher than the cost of producing in some rented facility (viz., the one that charges $150 per hour), in which case, the programming agency would not be indifferent but would regret its decision to establish a governmental studio.

Maximum annual costs of maintaining a governmental studio, rather than nominal costs, are used in determining the indifference cost-share factor because the particular studio packages of Appendix B, which underlie the computation of nominal costs, do not include time base correctors, nor 2" record/reproduce video-tape machines with electronic editing capabilities that are found today in most existing studio facilities.

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Rented facility--

$$\text{Production cost per showing} = 1620/54 + \frac{13(\text{hourly rental for an equipped and staffed studio})}{54}$$

Governmental studio--

$$\text{Production cost per showing} = 1620/54 + \frac{(\text{annual equipment amortization} + \text{annual staff cost} + \text{annual operating costs}) \times \text{cost-share factor}}{54}$$

[5]This is the sum of production, programming, programming revision, and tape transport costs, spread over the number of showings in the bicycling schedule and over the number of prospective foster parents projected to be recruitable into a cable-delivered training series shown in the Lansing area in the last quarter of 1979.

Production costs are described in note 4, preceding.

Programming cost is $1,490 for an instructional series requiring 35 hours of instructor's time at $34 per hour, and 30 hours of discussion leader's time at $10 per hour.

Programming revision cost is 10% of programming and production cost.

Tape transport cost is about $9 per showing for parcel post carriage of three 6-pound and three 3-pound packages of videocassettes between any two Michigan cities.

The number of prospective foster-family units recruitable into a cable-delivered training series shown in the Lansing area in the last quarter of 1979 is derived from information collected in a telephone survey of agencies recruiting in the area. The telephone survey produced the following information:

Agency	Number of licensees as of 4/74	Target number of replacement and new licensees in the period 4/74-4/75
Probate Court	approximately 140	approximately 60
Ingham County Department of Social Services	" 65	" 12
Family & Child Services	" 30	" 25
Catholic Social Services	" 20	" 5

Based on this data, the expected increase in licensees in the period 4/74-4/75, computed by weighting agency targets by the share of licensees as of 4/74, is 39.33.[8] Since agency personnel report that recruitment is relatively uniform throughout the year, this is equivalent to 19.67 new licensees, or roughly 20 new licensee, every 6 months (the intershow period for the training series). Assuming that these agencies can at least recruit the same absolute number of new licensees in the more distant future as they expect to recruit in the coming year, 20 prospective foster-family units are projected to be recruitable into a cable-delivered training series shown in the Lansing area in the last quarter of 1979.

[6]The distribution cost per family of $17.90 is the product of a cost-related lease rate of $40.91 per program-hour and an overall program time of 8-and-3/4 hours (7, 1¼-hour training sessions) spread over the 20 recruitable foster-family units.

The per program-hour cost-related lease rate of $40.91 is the sum of a downstream channel-hour lease rate of $37.45 and an upstream channel-hour lease rate of $3.46. The downstream rate is for program carriage from the Lansing headend everywhere throughout the network, whereas the upstream rate is for carriage from an originating location in the Lansing/3-township central district of the network

[8]In the absence of other data, the share of licensees as of 4/74 is taken as a harsh proxy for a discount factor that is reflective of past attainment of targeted goals.

to the Lansing headend.

Cost-related channel-hour lease rates for network users are determined to recover capital expenditures, the cost of debt capital, and plant operating costs for that part of network capacity relied upon in delivering public information (the training series); and are determined under the presumption that all users in a given class, e.g., public agency users, requiring the same category of service, e.g., program originations from one location to be distributed network-wide, are charged the same rates. Rates so determined for public agency users are prefaced by the term cost-related because they do not include a return to equity capital in the face of an anticipated demand. Demand is a part of these lease-rate determinations only inasmuch as costs are assumed recoverable over 1,560 program hours per channel per year (30 program hours per channel per week) in the belief that over the life of the network this utilization level of video channels for public purposes is realizable.[h]

Channel-hour rates are computed by decomposing the network into homogeneous groups of cable or interconnection systems with the same number of video channels (see table on pp. 11-12, following.) The annualized capitalization, cost of debt capital, and plant operating cost are computed for each group as the sum of the respective costs for the component system(s) constituting the group. Each annualized cost is spread over the number of channels in the group and over 1,560 program hours per year.[i] The resultant annualized per channel-hour capitalizations,

[h]Distribution costs through to the directional taps are assumed recoverable over thirty (30) program hours per channel per week. However, per client terminal costs, from the directional tap to the television receiver, are assumed recoverable over three (3) program hours per channel per week for the time-averaged fraction (over the ten-year network life) of subscribers who are also expected to be public agency clients (also see footnote k, following).

[i]For each network group, that part of annualized capitalization and cost of debt capital covering terminal costs for clients who are already subscribers is spread over 156 program hours per year (see footnote h, preceding).

costs of debt capital, and plant operating costs for all of the network groups are respectively summed to obtain the annualized capitalization per channel-hour, the annualized cost of debt capital per channel-hour, and the annualized plant operating cost per channel-hour for the network as a whole. These annualized and per channel-hour annualized costs for the network groups, and for the network as a whole, are listed in the table on the following page.

The downstream channel-hour rate for the network is the sum of the annualized per channel-hour capitalization, cost of debt capital, and plant operating cost for the network as a whole.

The upstream channel-hour rate is computed as one-quarter of the sum of the annualized per channel-hour capitalization, cost of debt capital, and plant operating cost for the system in the Lansing/3-township central district of the network, since it is assumed that programs originate in this district (and programs so originating would require upstream transmission capacity only on this system of the network). The sum of annualized per channel-hour costs is divided by four because costs for an upstream channel can be recovered from simultaneous use of the same channel on each of the system trunks for upstream transmission of different information, and because the Lansing/3-township district is assumed to have a cable system with one hub and four main trunks.[J]

[J]$300 for company administrative expenses incurred in negotiating and scheduling channel use by public agencies is also reflected in the upstream channel-hour rate (administrative costs are not included in plant operating costs). The upstream rate for originations from the Lansing/3-township central district of the network is $13.09 divided by 4 plus $300 spread over 1,560 program hours per channel.

The design of the network also allows upstream transmissions which are to be distributed network-wide to originate in the other central district of the network, which includes East Lansing, Meridian township and Okemos, parts of Delhi township and Holt. Given a central district of the network from which programs originate, channel leasees in a similar class, e.g., public agency users, originating from any location remote from the headend in that district, would be charged the same upstream rate regardless of the distance between the location of the originating facility and the headend. This is proper since the transmission would completely occupy the upstream channel on one trunk, to the exclusion of all other users, whether the location of the originating facility is close to or far from the headend. The upstream rate would depend however, on which of the two central districts is the originating district if cross-subsidization among districts is precluded. The upstream channel-hour rate for originations from the other central district is $2.15 ($7.82 divided by 4 plus $300 distributed over 1,560 hours, for cable company administrative expenses relative to negotiating and scheduling public agency use).

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COST-RELATED CHANNEL-HOUR RATES FOR THE NETWORK GROUPS AND FOR THE COMPLETE NETWORK

Network group and (number of video channels)	Annualized capitalization[1]	Annualized cost of debt capital[2]	Annualized plant operating cost[3]	Annualized capitalization per channel-hour	Annualized cost of debt capital per channel-hour	Annualized plant operating cost per channel-hour	Annualized capitalization, cost of debt capital, and plant operating costs per channel-hour
System in the central district serving the city of Lansing & parts of Delta, DeWitt, and Delhi townships (78)	$518,278	$492,105	$190,866	$ 5.91	$ 5.61	$ 1.57	$13.09
System(s) in the central district serving East Lansing, Meridian township and Okemos, part of Delhi township and Holt (78)	$340,827	$323,615	$187,122	$ 3.22	$ 3.06	$ 1.54	$ 7.82
Interconnection system (31)	$ 74,022	$ 70,283	$ 54,157	$ 1.53	$ 1.45	$ 1.12	$ 4.10
System(s) in peripheral districts and outlying localities serving Grand Ledge city and part of Delta Township, DeWitt city and part of DeWitt township, and the cities of St. Johns, Williamston, Mason, Eaton Rapids, Charlotte, and Potterville (39)	$208,650	$198,113	$260,520	$ 4.19	$ 3.97	$ 4.28	$12.44

(Table continued)

cont'd

Complete network	$1,141,777	$1,084,116	$692,665	$14.85	$14.09	$ 8.51	$37.45

[1]See page 13, following for general elaboration of what annualized capitalization includes and what it excludes. $518,278, for example, the annualized capitalization for the system in the Lansing/3-township central district of the network, is approximated as:

Capital costs for the Lansing extended distribution plant including terminal costs for all subscribers (from Appendix C).

Headend equipment for 1-way subheadend in Lansing (from Appendix C)--rooftop tower and related costs are accounted for under the interconnection system.

2.5% for spare parts, test equipment and contingencies

Subtraction of terminal costs (from Appendix C) for time-averaged fraction (0.9) of subscribers not expected to be public agency clients.

$$\frac{(\$6{,}186{,}500+\$807{,}304 + \$20{,}000)\ 1.025 - 0.9(\$1{,}848{,}000+\$381{,}304)}{10}$$

system life

All cost estimates are very conservative. See Appendix C, note number 12.

[2]Annualized cost of debt capital is found as the equal-payments solution of a simple debt-flow model. See pages 13-14 and footnote following.

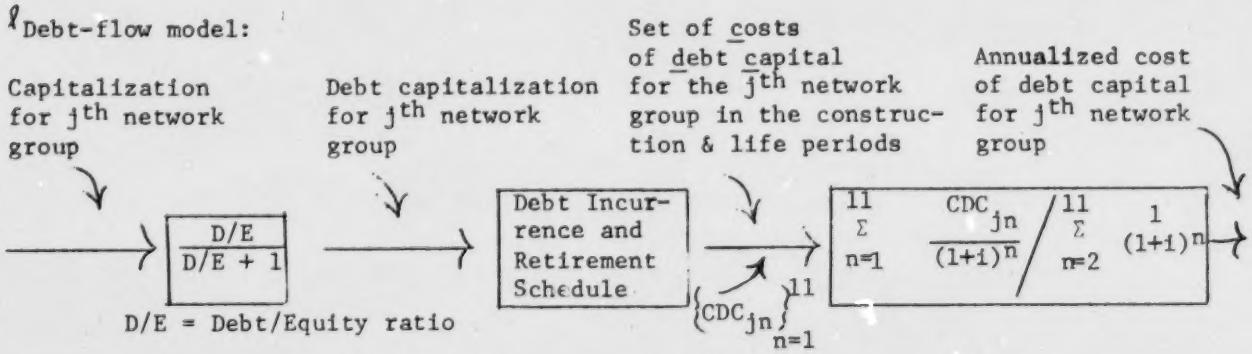
[3]Components of annualized plant operating cost are specified on page 14 . Annualized plant operating cost is a larger fraction of annualized capitalization for network groups with smaller capitalizations primarily because the operating costs for the component plants of these groups include costs of staffing at levels which would permit stand-alone operation. Although implicit economies of scale are not thereby fully exploited, flexibility is retained with regard to the organization of ownership and operation of the component plants.

For any network group, the annualized capitalization is the sum of the capital costs of its component systems prorated over a ten-year life. Capital costs are included for headends, distribution plants, microwave and supertrunk interconnection links, spare parts, and test equipment. Capital costs are also included for the central-district tower since it serves for microwave transmission of leased-channel signals as well as for acquisition of broadcast signals. Capital costs for distribution plants are 'through to the subscriber' for the time-averaged fraction (cost-conservatively guesstimated as one-tenth over the life of the network) of subscribers expected to be public agency clients, and include directional taps, droplines, A/B switches and converters for these client-subscribers.[k] Capital costs for company studios are not included in the lease rate determination. The actual cost for playback of training tapes associated with this omission would be relatively insignificant. All capital costs for the network are specified in detail in Appendix C.

For any network group, the annualized cost of debt capital is found as the equal-payments solution of a simple debt-flow model.[l] Two-thirds of capital

[k]Thus, the public agency pays its fair share for distributing information through to the cable-television subscriber who is also a public agency client by way of a channel lease rate which reflects distribution costs through to the client-subscriber. The full cost of connecting, enabling reception, and disconnecting clients who are not subscribers is borne by the public agency. See note 7, following.

[l]Debt-flow model:


Capitalization for jth network group
Debt capitalization for jth network group
Set of costs of debt capital for the jth network group in the construction & life periods
Annualized cost of debt capital for jth network group
D/E
D/E + 1
D/E = Debt/Equity ratio
Debt Incurrence and Retirement Schedule
{CDC_jn}, n=1 to 11
Σ n=1 to 11 CDC_jn / (1+i)^n
Σ n=2 to 11 1 / (1+i)^n

expenditures are assumed to be debt financed. Debt is incurred at 10% simple interest in the last year of a one- or two-year construction period which precedes the start of a ten-year system life, and is retired in equal amounts in the last four years of the ten-year life. The equal-payments flow is a time series of equal interest payments each of which is the annualized cost of debt capital.

For any network group, the annualized plant operating cost to be recovered from channel leasing by public agencies includes a per channel share of the salaries of the chief technician, maintenance technicians, bench technicians, and microwave technicians; of annual material costs for maintenance and repair; of annual vehicular rental; of annual pole rentals and tower-site rental; and of the annual cost of electric power.[m]

This determination of cost-related lease rates for public agency network users, who require a category of communication services in which audio-video originations from one location are distributed network-wide, has as its underpinnings the particular network design for the Lansing area presented in Appendix C. The design is an integrated design for the completion of a local cable-network in the Lansing area (systems now operating or franchised in the area are fixed points from which the design evolves). It presumes that cable communications development in the area will be coordinated by a supervening authority for the limited purpose of inspiring a 'cooperative competition' by which economies of scale are realized through adherence to an integrated design and practice of widespread cost-sharing, while flexibility is retained with respect to the emergence of variegated ownership and operating patterns among

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[m]Aggregated across all network groups these per channel shares for the entire network are:

Technicians:	$6,361 per channel-year
Maintenance and repair:	$1,906 per channel-year
Vehicular rental:	843 per channel-year
Pole and tower-site rentals:	$3,557 per channel-year
Electric power:	$ 606 per channel-year

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network districts. If development is uncoordinated, lease rates for the same communications capabilities will be higher because underlying costs will be higher.

[7]The total cost per family trained is the sum of programming and production cost per family described in note 5, distribution cost per family described in note 6, and the average terminal cost per family trained.

The average terminal cost per family trained is $24.17 for a showing in the Lansing area in the last quarter of 1979. It is the total cost of enabling reception for all trainees who are not cable television subscribers spread over all foster-family units to be trained.

For each of the network groups, the total cost of enabling reception for trainees who are not subscribers is computed as the product of the dropline-associated cost (cost of the dropline, labor to connect and disconnect, and all components to enable reception for any one household), one minus the cable system penetration (the fraction of trainee households that must be connected), and the number of households with families to be trained. In this computation, penetration is taken as 0.46 for each network group.[n] The dropline-associated cost for households in the central districts of the network is $49 which is appropriate for a dual-trunk dual-feeder plant with an A/B switch in an arrangement where the switch is leased for the period in which the viewer is a public agency client designated to receive a public information service. The dropline-associated cost for households in peripheral districts and outlying localities of the network is $32.00 which is appropriate for a single-trunk single-feeder plant with a converter in an arrangement where the converter is leased for the period in which the

[n]This is the same as the penetration in the city of Lansing in the last quarter of 1978 used in the computation of average terminal cost per family trained in scenario VI. Since not even the actors, no less the construction schedules, are known for some of the network groups, this penetration is used so as not to arbitrarily contaminate the comparison of cost per family trained between the cases of single-system distribution in Lansing city (scenario VI) and network distribution in the Lansing area (scenario VII).

the viewer is a public agency client designated to receive a public information service. For this showing of the training series in the last quarter of 1979, three-fourths of the trainee households are assumed to be in the central districts of the network.

FIGURES TO THE SECTION REPORT

FIGURE I

TOTAL COST PER FAMILY TRAINED AS A FUNCTION OF THE FRACTION OF TRAINEES WHO VIEW IN COMMUNITY CENTERS FOR SELECT SHOWINGS IN ALTERNATIVE SCENARIO I.

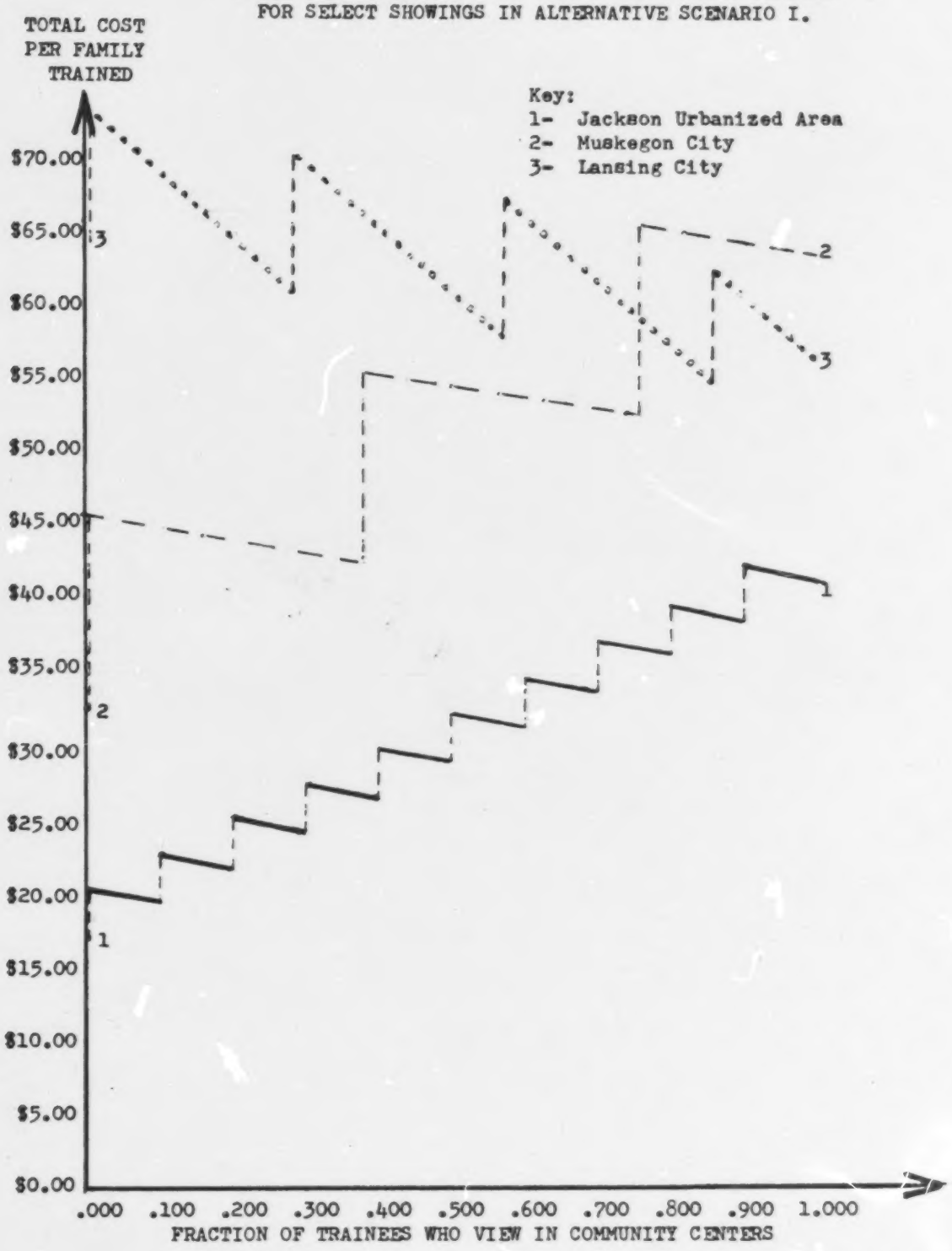


FIGURE II

TOTAL COST PER FAMILY TRAINED AS A FUNCTION OF
STEPPED-UP RECRUITMENT IN ALTERNATIVE SCENARIOS III AND V.

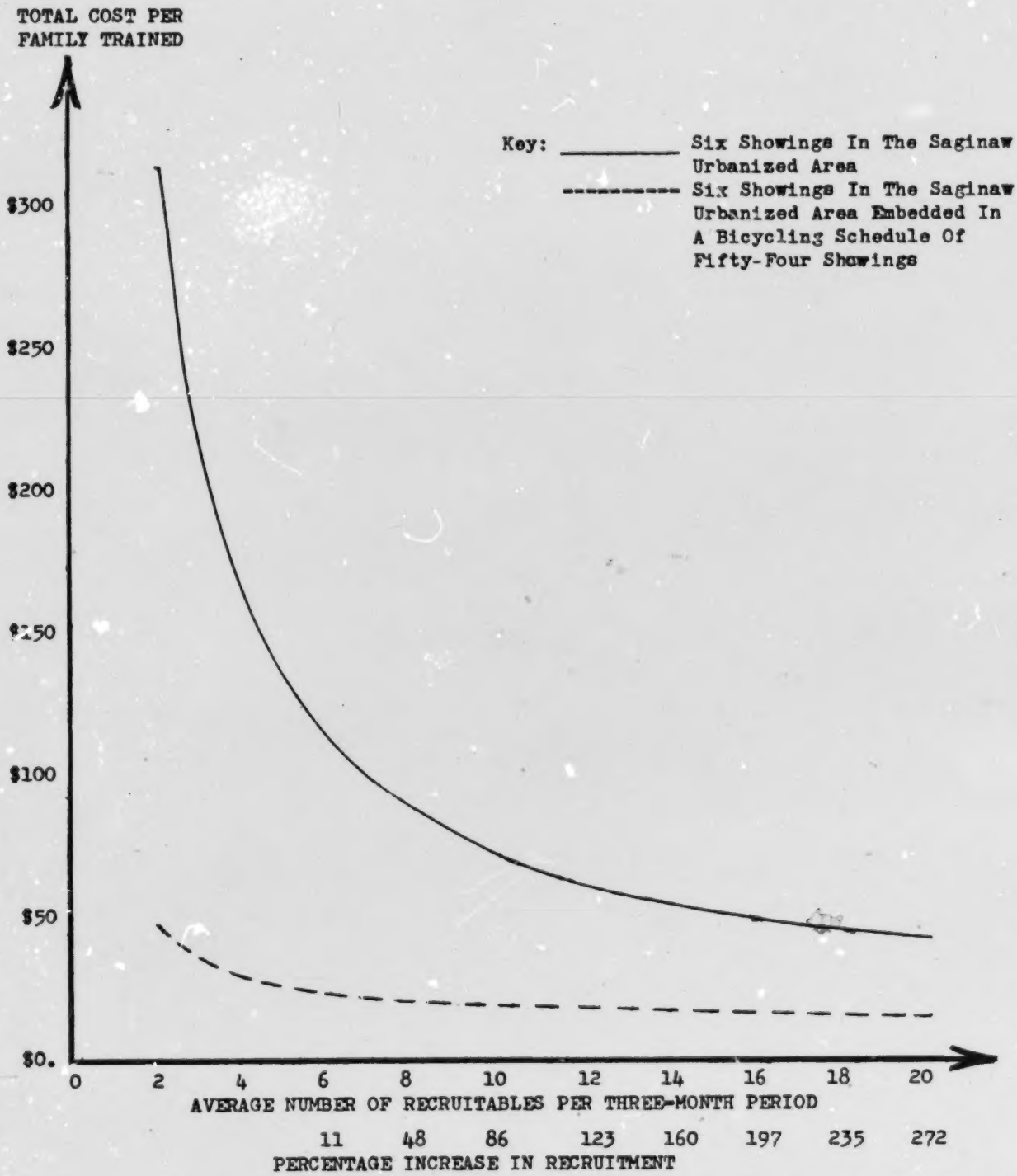
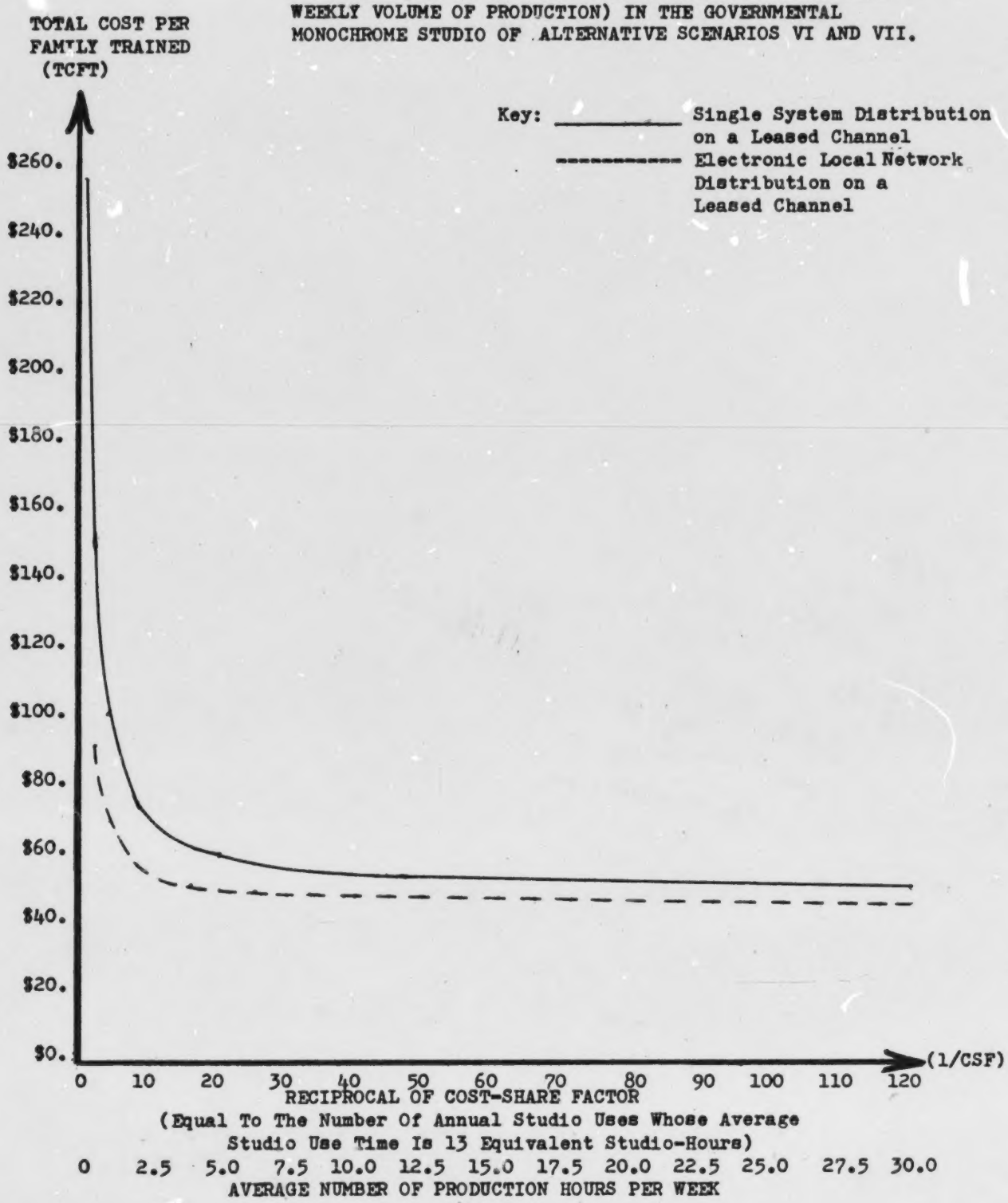

TOTAL COST PER FAMILY TRAINED
Key: Six Showings In The Saginaw Urbanized Area
Six Showings In The Saginaw Urbanized Area Embedded In A Bicycling Schedule Of Fifty-Four Showings
$300
$250
$200
$150
$100
$50
$0.
0 2 4 6 8 10 12 14 16 18 20
AVERAGE NUMBER OF RECRUITABLES PER THREE-MONTH PERIOD
11 48 86 123 160 197 235 272
PERCENTAGE INCREASE IN RECRUITMENT

FIGURE III

TOTAL COST PER FAMILY TRAINED AS A RECIPROCAL FUNCTION OF COST-SHARE FACTOR (AND DIRECT FUNCTION OF AVERAGE WEEKLY VOLUME OF PRODUCTION) IN THE GOVERNMENTAL MONOCHROME STUDIO OF ALTERNATIVE SCENARIOS VI AND VII.


TOTAL COST PER FAMILY TRAINED (TCFT)
Key: Single System Distribution on a Leased Channel
Electronic Local Network Distribution on a Leased Channel
$260.
$240.
$220.
$200.
$180.
$160.
$140.
$120.
$100.
$80.
$60.
$40.
$20.
$0.
(1/CSF)
0 10 20 30 40 50 60 70 80 90 100 110 120
RECIPROCAL OF COST-SHARE FACTOR
(Equal To The Number Of Annual Studio Uses Whose Average Studio Use Time Is 13 Equivalent Studio-Hours)
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 27.5 30.0
AVERAGE NUMBER OF PRODUCTION HOURS PER WEEK

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SECTION II

APPENDICES

Appendix A

Variable Definitions and Mathematical Relationships for Scenario I

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Discussion of the Optimal Ordering of Showings Among Places and Movement Toward an Approximate Solution to the Optimal Ordering Problem

Appendix B

Equipment and Operating Costs for the Nominal Cost-Shared Governmental Studios of Scenarios VI and VII

Appendix C

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Policy-Exploration Simulation Model for Cable-Delivered Public Information Services

APPENDIX A

VARIABLE DEFINITIONS AND MATHEMATICAL RELATIONSHIPS FOR SCENARIO I

DATA-BASE ADEQUACY AND METHODOLOGY FOR FORECASTING NUMBERS RECRUITABLE

DISCUSSION OF THE OPTIMAL ORDERING OF SHOWINGS AMONG PLACES AND MOVEMENT TOWARD AN APPROXIMATE SOLUTION TO THE OPTIMAL ORDERING PROBLEM

VARIABLE DEFINITIONS AND MATHEMATICAL RELATIONSHIPS FOR SCENARIO I

Variable and Parameter Definitions for Scenario I

Number of family units recruitable:

NFR(T) = number of family units recruitable into a cable-delivered training series shown at time T.

NL = number of foster family- and combination-home licensees on the reference date, 4/74.

ANQC = average net quarterly change in the number of licensees over the period 7/72-4/74.

T = time, measured in quarter-years from the reference date, 4/74, which is T=0.

RPSPR = ratio of population in the cable service area to population in the recruitment area (1970 census).

NCSE(T) = number of cable construction sectors energized by the time of show.

Programming, production, and videotape-transport cost per family unit:

PPTCF(T) = programming, production, and videotape-transport cost per family unit for the showing at time T.

PPTC = programming, production, and videotape-transport cost for all showings in the bicycling schedule.

NS = number of showings of the training series in the complete bicycling schedule.

Average terminal cost per family unit:

ATCF(T) = average terminal cost per family unit viewing a cable-delivered training series shown at time T (across all viewers irrespective of their place of viewing and subscriber status or lack thereof).

UCSP = ultimate cable-system penetration.

DAC = dropline-associated cost per client requiring connection to the cable distribution lines (comprises cost of directional tap, dropline, labor to connect and disconnect, converter block, ground rod, transformer, A/B switch and/or converter, and miscellaneous hardware).

CSPR = cable system penetration on the reference date, 4/74.

OCP = quarterly change in penetration with linear growth toward ultimate penetration attained by 4/77.

PIS(T) = penetration at time T in the i^{th} sector of a cable system under construction.

MISO = month, measured from the reference date, in which the i^{th} sector of a cable system under construction is turned on.

Average staff cost per family unit:

ASCF(T) = average staff cost per family unit viewing a cable-delivered training series shown at time T (across all viewers irrespective of their place of viewing).

410 = staff cost per viewing room (see note 7 to table I).

12 = maximum number of family units that congregate in any viewing room.

Total cost per family unit trained:

TCFT(T) = total cost per family unit trained by means of a cable-delivered training series shown at time T.

Figure of merit:

FOM(T) = figure of merit for the showing at time T.

Mathematical Relationships for Scenario I[1]

Number of family units recruitable:

NFR(T) = (NL + ANQCxT)RPSPR
= (96 + 0.33xT)1.0, showing in city of Ann Arbor
= (50 + 1.96xT)1.0, showing in Bay City Urbanized area
= (69 - 3.12xT)1.0, showing in city of Battle Creek
= (353 - 1.75xT)0.72, showing in Flint urbanized area
= (129 + 6.49xT)0.68, showing in Jackson urbanized area
= (287 + 9.37xT)1.0, showing in Kalamazoo urbanized area
= (50 + 2.04xT)1.0, showing in city of Midland
= (62 - 2.52xT)1.0, showing in city of Muskegon
= (201 + 5.37xT)0.93, showing in Saginaw urbanized area
= (36 + 0.29xT)1.0, showing in city of Wyoming

NFR(T) = (NL + ANQCxT)RPSPRxNCSE(T)/4
NCSE(T) = 0, $T < 6.5$; 1, $6.5 \leq T < 9$; 2, $9 \leq T < 11.5$; 3, $11.5 \leq T < 14$; 4, $T \geq 14$
(7½ months is allowed for construction in each of 4 sectors)
NFR(T) = (211 + 1.70xT)1.0xNCSE(T)/4, showing in city of Grand Rapids
= (123 - 3.52xT)1.0xNCSE(T)/4, showing in city of Lansing

[1]See notes to table I for explanatory text.

Programming, production, and videotape-transport cost per family unit:

$$PPTCF(T) = PPTC/NSxNFR(T)$$
$$= \$7,182/9xNFR(T), \text{ each showing}$$

Average terminal cost per family unit:

$$ATCF = \frac{(NFR(T)/2)(1 - UCSP)DAC}{NFR(T)}$$
$$= (1/2)(1 - UCSP)DAC$$
$$= (1/2)(1 - 0.3)60, \text{ showing in city of Ann Arbor}$$
$$= (1/2)(1 - 0.41)25, \text{ showing in Bay City urbanized area}$$
$$= (1/2)(1 - 0.52)25, \text{ showing in city of Battle Creek}$$
$$= (1/2)(1 - 0.42)25, \text{ showing in Flint urbanized area}$$
$$= (1/2)(1 - 0.59)25, \text{ showing in Jackson urbanized area}$$
$$= (1/2)(1 - 0.23)25, \text{ showing in Kalamazoo urbanized area}$$
$$= (1/2)(1 - 0.42)25, \text{ showing in city of Midland}$$

$$ATCF(T) = (1/2)(1 - (CSPR + QCPxT))DAC$$
$$= (1/2)(1 - (0.05 + .053T))25, \text{showing in city of Muskegon}$$
$$= (1/2)(1 - (0.22 + .038T))25, \text{ showing in Saginaw urbanized area}$$
$$= (1/2)(1 - (0.00 + .042T))62, \text{ showing in city of Wyoming}$$

$$ATCF(T) = (1/2)(1 - \tfrac{1}{4}\sum_{I=1}^{4} PIS(T))DAC$$

$PIS(T) = (UCSP/18)(3T - MISO)$, $MISO < 3T < MISO+18$; 0, $3T \leq MISO$; $UCSP$, $3T \geq MISO+18$; $I=1,2,3,4$.
(linear growgh toward ultimate cable system penetration attained 18 months after section energization)

$$ATCF(T) = (1/2)(1 - \tfrac{1}{4}\sum_{I=1}^{4} PIS(T))62, \text{ showing in city of Grand Rapids}$$

$$= (1/2)(1 - \tfrac{1}{4}\sum_{I=1}^{4} PIS(T))53, \text{ showing in city of Lansing}$$

$P1S(T) = (0.5/18)(3T - 19.5)$, $19.5 < 3T < 37.5$; 0, $3T \leq 19.5$; 0.5, $3T \geq 37.5$
$P2S(T) = (0.5/18)(3T - 27)$, $27 < 3T < 45$; 0, $3T \leq 27$; 0.5, $3T \geq 45$
$P3S(T) = (0.5/18)(3T - 34.5)$, $34.5 < 3T < 52.5$; 0, $3T \leq 34.5$; 0.5, $3T \geq 52.5$
$P4S(T) = (0.5/18)(3T - 42)$, $42 < 3T < 60$; 0, $3T \leq 42$; 0.5, $3T \geq 60$; in both the cities of Grand Rapids and Lansing (construction begins 4/75 in both cities, any section in either city is assumed to require 7½ months to complete)

Average staff cost per family unit:

$$ASCF(T) = \frac{410\left[\frac{NFR(T)/2}{12}\right]}{NFR(T)}$$ where the brackets denote the smallest integer equal to or greater than $\frac{NFR(T)/2}{12}$, each showing.

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Total cost per family unit trained:

$$TCFT(T) = PPTCF(T) + ATCF(T) + ASCF(T), \text{ each showing}$$

Figure of merit:

$$FOM(T) = NFR(T)/TCFT(T), \text{ each showing}$$

For simultaneous showings in places 'i' and 'j' (Bay City/Midland, Grand Rapids/Wyoming, and Kalamazoo/Battle Creek)

$$NFR(T) = NFR_i(T) + NFR_j(T)$$

$$ATCF(T) = (NFR_i(T) \times ATCF_i(T) + NFR_j(T) \times ATCF_j(T))(NFR_i(T) + NFR_j(T))$$

$$ASCF(T) = (NFR_i(T) \times ASCF_i(T) + NFR_j(T) \times ASCR_j(T))/(NFR_i(T) + NFR_j(T))$$

DATA-BASE ADEQUACY AND METHODOLOGY FOR FORECASTING NUMBERS RECRUITABLE

Data-Base Adequacy for Forecasting Recruitables

The data base upon which the number of family units expected to be recruitable into a cable-delivered training series is forecast is inadequate. That forecast rests on estimates of two parameters, NL, the number of foster family- and combination home licensees on the reference date, and ANQC, the average net quarterly change in number of licensees. Both parameters are estimated for each place in the bicycling schedule in which the training series is shown.

Data for the estimate of NL is extracted from computer printouts BG-038, BG-039, and BG-040 of the Michigan Department of Social Services for the month of March 1974. These printouts are respectively listings of licensees of county departments of social services, private agencies, and county courts. Licensees were counted as residing in a particular city or urbanized area if their mailing address was in that city or urbanized area. Aside from the small error introduced because homes located outside limits of cities or urbanized areas are served by post offices within limits of cities or urbanized areas, estimates of the number of licensees on the reference date are reliable.

Estimates of the average net quarterly change in licensees in the places of the bicycling schedule are unreliable because of inadequacy of the data upon which they are based. Printouts BG-038, -039, and -040 could not be secured for prior quarters and current printouts revealed only current levels of licensees. Time-series data required to estimate quarterly rates of change in the number of licensees could only be obtained from a recent study completed by the division of Social Services Evaluation and Analysis, State of Michigan. Data from this study was inadequate to the purposes at hand for three reasons.

Firstly, time series data were for number of social-worker cases rather than number of licensed foster homes, and no time series data was available from which the average number of cases per foster home could be estimated.

Secondly, the smallest geographic breakdown for this data was by county, whereas cable-delivered training series are to be shown in cities and urbanized areas; and thirdly, this data did not include foster homes supported from county funds.

Assuming a one-to-one correspondence between cases and foster homes, the nature of the data still introduced the problem of inferring time-series data on licensees in smaller areas (cities or urbanized areas) from time-series data on licensees in counties, when the county data omitted licensees recruited by county probate courts which are supported from county funds but operate in the smaller areas. With movement from the counties to the smaller areas, on the one hand, an increase in the number of licensees would be expected because of recruitment efforts of the probate courts; and, on the other hand, a reduction in licensees would be expected because some licensees counted in the county figures reside in rural areas. These two effects are not separable in the absence of time-series data by recruiting agency and political divisions at the urbanized area and city levels.

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Forecasts of recruitables in scenarios I, II, and IV are based on estimates that were, of course, derived from whatever data was available. Time-series data for the counties was used to estimate average net quarterly changes in licensees in the counties. Each of these county average net quarterly changes was scaled by the ratio of licensees in the smaller area (city or urbanized area) to licensees in the county on the reference date, as this was the only time point for which data was available in both the smaller areas and the counties. This procedure understates the average net quarterly change in the smaller areas inasmuch as growth in licensees has been greater in the cities and urbanized areas than in the rural areas, and inasmuch as the rate of growth of licensees recruited by the probate courts has been greater than the rate of growth of licensees recruited by other agencies.

Methodology for Forecasting Recruitables

The methodology of forecasting employed relies on the simplest of all forecasting techniques, trend extrapolation. Estimates of NL and ANQC discussed previously are point estimates of the intercept and slope of the trend line. There are two major reasons why this rudimentary technique is used: (1) inadequacy of the data base as previously discussed; and (2), the changing character of foster parenting and recruitment.

Forecasting relationships based on historical data, regardless of the forecasting technique employed, will at this juncture in the development of foster parenting probably have poor predictive power. Underlying structure is in transition: data for past time periods reflects the old structure; data for current time periods is hybrid.

In the past, foster children were predominantly very young and cuddly. Foster parents were rewarded with affection, long tenure of foster parenting, community and church respect. Foster homes were predominantly stable middle income homes frequently located in outlying communities around urban areas. Recruitment was passive with most referrals from existing foster parents.

In the present, foster children are more frequently inner-city teenage youths, emotionally disturbed children, and mentally retarded children. Foster parents are rewarded by the satisfaction of forging a piece of the child's life, and by the self-demonstration of their own capabilities to help others. Foster homes are increasingly urban and inner-city homes in which the child recognizes certain cultural support systems which have served him/her in the past and to which he/she will return when rejoined with his/her natural parents. Recruitment is becoming increasingly active with use of broadcast spots, advertising agencies, community newspapers, 'homefinders', speakers at school and church events, and information and referral booths in public places.

It was thought a poor allocation of effort, and thought injudicious, to mask this changing recruitment structure and inadequate data base by applying a more sophisticated estimation or approximation technique.[2] As long as the

---

[2]Before the data problems and changing structure were appreciated, an attempt was made to formulate a nonsymmetrical growth curve relationship that included explanatory variables dominantly relevant to the old recruitment structure. That relationship took the form:

$$LN(NFR) = LN\left[f_L(x_3,\ldots,x_7)\right] - f_S(x_2,\ldots,x_8)e^{-f_R(x_2,\ldots x_6,x_8,x_9,x_{10})x_{1EA}}$$

where NFR is the number of family units recruitable per 6-month period and f_L, f_S, and f_R are respectively limit, shift, and rate functions of the growth curve that are dependent on the explanatory variables:

x_{1EA}--exponential average of direct recruitment expenditures and imputed cost of media employed for recruitment by all foster parent agencies operating in the recruitment area.

x_2--cumulative number of foster family- and combination-home licensees in the recruitment area.

x_3--% of area households in the $8K-16K income bracket.

x_4--% of area population with a high school diploma but less than 4 years of college.

x_5--% of area households with a single wage-earner.

x_6--% of household units at same residence at least five years.

x_7--dummy variable; 1 if urban area, 0 if outlying community.

x_8--$=x_7x_2$

x_9--imputed media cost/(imputed media cost + direct recruitment expenditures)

x_{10}--direct recruitment expenditures/(imputed media cost+direct recruitment expenditures)

This relationship may be regarded as a supply relationship for the old structure in the face of low levels of x_{1EA}. A supply relationship for the new structure of foster parenting and recruitment would have redefined explanatory variables pertinent to the supply of homes for inner-city youths, emotionally disturbed and mentally retarded children. A demand relationship for the new structure would express direct and media expenditures for recruitment as a function of demand for foster homes by type of child to be placed.

recruitment structure is in a state of fast flux, future forecasting attempts, even with access to an improved data base, must combine data-based relationships with theoretic combinations of predictive variables thought pertinent to the new structure.

DISCUSSION OF THE OPTIMAL ORDERING OF SHOWINGS AMONG PLACES AND MOVEMENT TOWARD AN APPROXIMATE SOLUTION TO THE OPTIMAL ORDERING PROBLEM

Highest-Payoffs-First Ordering Not Generally Optimal

After only a few showings of the go-slow bicycling schedule of scenario I, it may be decided that widespread implementation rather than continued experimentation is appropriate, in which case, the schedule of scenario I would be abandoned in favor of a schedule with faster bicylcing among a larger number of places. In the face of uncertainty regarding the length of the schedule (i.e., the number of showings in the schedule) in scenario I, a highest-payoffs-first ordering of showings among places is not generally optimal. A highest-payoffs-first ordering is one in which showings occur first in places where the largest number can be trained at the lowest cost. Because of the time variation of training costs and numbers recruitable however, it may be possible to train a still larger number of recruitables at still lower cost by postponing showings in some places; whereas in other places of the bicycled-tapes network, more recruitables may be trained at lower cost by advancing showings to earlier periods. With reference to figure A-I, it is clear that the figures of merit for constituent showings of the schedule can be increased by postponing showings in places like Kalamazoo/Battle Creek, Saginaw, and Jackson where figure of merit (FOM) time paths trend upward, and advancing showings to earlier time periods in places like Flint and Muskegon where FOM time paths trend downward.

The highest-payoffs-first ordering criterion dictates that the training series be shown in the first period, 4/75-7/75, in the Kalamazoo urbanized area (and by virtue of a microwave interconnection simultaneously in the city of

Battle Creek), since a showing in Kalamazoo/Battle Creek has the highest FOM for this period. If the schedule is abdicated after this showing, then the choice of Kalamazoo/Battle Creek was indeed optimal. Suppose, however, that the schedule is discarded after two showings. The highest-payoffs-first ordering criterion dictates that the first showing be in Kalamazoo/Battle Creek since that showing has the highest FOM in the first period, and that the second showing be in Flint since that showing has the highest FOM in the second period among all possible showings in places in which the training series has not already been shown. Yet it is apparent from the time paths for these places (see Figure A-I) that FOM for a showing in Kalamazoo/Battle Creek in the second period is higher than FOM for a showing in the first period, and that FOM for a showing in Flint in the first period is higher than FOM for a showing in the second period. The figure of merit for showings in both places can be increased by exchanging the order of showings among places contrariwise to the dictates of the highest-payoffs-first ordering criterion.

General Formulation of the Ordering Problem

An ordering criterion is needed that encompasses the complete trajectories of the number recruitable and cost functions in each place of the bicycling schedule over its time horizon, and the uncertainty as to when the schedule will be abandoned. Such a criterion is embodied in the following elementary formulation of the ordering problem:

> Select that assignment of show periods to places which maximizes expected overall figure of merit (EOFOM) subject to the constraint that each show period is assigned to one and only one place not previously assigned some other show period. EOFOM is given by

$$\text{EOFOM} = \sum_{n=1}^{9} \left[\begin{array}{l|l} \text{overall FOM for the} & \text{schedule terminates after} \\ \text{bicycling schedule} & \text{the } n^{\text{th}} \text{ showing} \end{array} \right] p_n$$

$$= \sum_{n=1}^{9} \text{FOM}^{(n)} p_n$$

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where

p_n is the probability of terminating the schedule after the n^{th} showing ($\sum_{n=1}^{9} p_n = 1,\ p_n \geq 0\ \forall n$).

and

$FOM^{(n)}$ is the overall figure of merit for a bicycling schedule that is terminated after the n^{th} showing.

It is easy to show by mathematical induction on the number of showings in the bicycling schedule that $FOM^{(n)}$ is related to the figures of merit and numbers of family units recruitable in the constituent showings of the bicycling schedule by the relationship,

$$FOM^{(n)} = \left(\prod_{i=1}^{n} FOM_i\right)\left(\sum_{i=1}^{n} NFR_i\right)^2 \Big/ \sum_{i=1}^{n} \left(NFR_i^2 \prod_{\substack{j=1 \\ j\neq i}}^{n} FOM_j\right).$$

The induction proof follows. Subscripts are used to denote variables corresponding to constituent showings, and parenthesized superscripts are used to denote variables corresponding to the overall schedule.

For a schedule with two showings:

$$FOM^{(2)} = NFR^{(2)}/TCFT^{(2)}$$

$$= (NFR_1 + NFR_2) \,/\, ((TCFT_1 \times NFR_1 + TCFT_2 \times NFR_2) \,/\, (NFR_1 + NFR_2))$$

$$= (NFR_1 + NFR_2)^2 \,/\, (TCFT_1 \times NFR_1 + TCFT_2 \times NFR_2)$$

$$= (NFR_1 + NFR_2)^2 \,/\, (NFR_1^2/FOM_1 + NFR_2^2/FOM_2)$$

$$= (FOM_1 \times FOM_2 (NFR_1 + NFR_2)^2) \,/\, (NFR_1^2 \times FOM_2 + NFR_2^2 \times FOM_1)$$

The proof is completed by demonstrating that the assumed truth of

$$FOM^{(k)} = \left(\prod_{i=1}^{k} FOM_i\right)\left(\sum_{i=1}^{k} NFR_i\right)^2 \Big/ \sum_{i=1}^{k} \left(NFR_i^2 \prod_{\substack{j=1 \\ j\neq i}}^{k} FOM_j\right)$$

$\Longrightarrow$

$$FOM^{(k+1)} = \left(\prod_{i=1}^{k+1} FOM_i\right)\left(\sum_{i=1}^{k+1} NFR_i\right)^2 \Big/ \sum_{i=1}^{k+1} \left(NFR_i^2 \prod_{\substack{j=1 \\ j\neq i}}^{k+1} FOM_j\right).$$

For a schedule with k+1 showings:

$$FOM^{(k+1)} = NFR^{(k+1)}/TCFT^{(k+1)}$$

$$= (NFR^{(k)}+NFR_{k+1})/((TCFT^{(k)}xNFR^{(k)}+TCFT_{k+1}xNFR_{k+1})/(NFR^{(k)}+NFR_{k+1}))$$

$$= (NFR^{(k)}+NFR_{k+1})^2/(TCFT^{(k)}xNFR^{(k)}+TCFT_{k+1}xNFR_{k+1})$$

$$= (NFR^{(k)}+NFR_{k+1})^2/((NFR^{(k)})^2/FOM^{(k)}+NFR^2_{k+1}/FOM_{k+1})$$

$$= (FOM^{(k)}xFOM_{k+1})(NFR^{(k)}+NFR_{k+1})^2/(FOM_{k+1}(NFR^{(k)})^2+FOM^{(k)}NFR^2_{k+1})$$

Invoking the expression for $FOM^{(k)}$ and noting that $NFR^{(k)} = \sum_{i=1}^{k} NFR_i$

$$FOM^{(k+1)} = \frac{(\prod_{i=1}^{k} FOM_i)(\sum_{i=1}^{k} NFR_i)^2 FOM_{k+1}(\sum_{i=1}^{k} NFR_i+NFR_{k+1})^2/\sum_{i=1}^{k}(NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k} FOM_j)}{FOM_{k+1}(\sum_{i=1}^{k} NFR_i)^2+((\prod_{i=1}^{k} FOM_i)(\sum_{i=1}^{k} NFR_i)^2 NFR^2_{k+1})/\sum_{i=1}^{k}(NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k} FOM_j)}$$

$$= \frac{\prod_{i=1}^{k+1} FOM_i(\sum_{i=1}^{k} NFR_i)^2(\sum_{i=1}^{k+1} NFR_i)^2}{FOM_{k+1}(\sum_{i=1}^{k} NFR_i)^2 \sum_{i=1}^{k}(NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k} FOM_j) + NFR^2_{k+1}(\prod_{i=1}^{k} FOM_i)(\sum_{i=1}^{k} NFR_i)^2}$$

$$= \frac{\prod_{i=1}^{k+1} FOM_i(\sum_{i=1}^{k+1} NFR_i)^2}{FOM_{k+1}\sum_{i=1}^{k}(NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k} FOM_j) + NFR^2_{k+1}(\prod_{i=1}^{k} FOM_i)}$$

But

$$\sum_{i=1}^{k+1}(NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k+1} FOM_j) = (\sum_{i=1}^{k} NFR_i^2 \prod_{\substack{j=1\\j\neq i}}^{k} FOM_j)FOM_{k+1} + NFR^2_{k+1}\prod_{i=1}^{k} FOM_i$$

Thus,

$$FOM^{(k+1)} = \frac{\prod_{i=1}^{k+1} FOM_i \left(\sum_{i=1}^{k+1} NFR_i \right)^2}{\sum_{i=1}^{k+1} \left(NFR_i^2 \prod_{\substack{j=1 \\ j \neq i}}^{k+1} FOM_j \right)}$$

Q.E.D.

Given any ordering of showings among places, $\{FOM^{(n)}: n=1,2,\ldots,9\}$, can be computed with recourse to the mathematical relationships for scenario I on pp. A2-A4. With the subjective assignment of schedule-termination probabilities, $\{p_n: n=1,2,\ldots,9\}$, the expected overall figure of merit can be computed for any ordering from $EOFOM = \sum_{n=1}^{9} FOM^{(n)} p_n$. That ordering which maximizes EOFOM in the face of the subjectively assigned termination probabilities is the optimal ordering of show periods among places.

Outline of an Exchange Algorithm to Compute an Approximate Solution to the Optimal Ordering Problem

The optimization problem can be exactly solved and the optimal order found by the inefficient algorithm (brute-force method) of trying all possible assignments of show periods to places and evaluating each $FOM^{(n)}$; n=1,2,...,9 for each assignment to see which assignment maximizes EOFOM. Since the first show period can be assigned to any of nine places, the second to any of eight places, and so forth, there are 9! = 362,880 assignments to try.

A more efficient algorithm for finding an approximate solution to the optimal ordering problem might start from the highest-payoffs-first schedule determined in scenario I, and exchange show periods among places where exchanges promise higher EOFOM (as in the exchange of the first and second periods of the schedule between Kalamazoo/Battle Creek and Flint, discussed on p. A9). Table functions for the NFR and FOM time paths could be stored and drawn upon to guide the search for promising exchanges.

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If primed variables are post-exchange variables and subscripts refer to show periods, any exchange that satisfies the inequalities:

(A1) $NFR'_j \geq NFR_i$; (read, post-exchange value in the later show period greater than or equal to pre-exchange value in the earlier show period)

and $NFR'_i \geq NFR_j$; $i<j$; $i,j = 1,2,\ldots,9$

and (A2) $FOM'_j \geq FOM_i$ and $FOM'_i \geq FOM_j$; $i<j$; $i,j = 1,2,\ldots,9$

would be a promising exchange that does in fact result in an increase in EOFOM.[3] (A1) and (A2) are satisfied if the exchange requires forward movement along the NFR and FOM time paths for one of the places and reverse movement along the time paths for the other place to show periods with respectively more recruitables and higher figures of merit than the original show periods. Exchanges that exclusively satisfy (A1) or (A2) would also be promising exchanges, although further computation would be required to definitively ascertain if EOFOM increases, since in these exchanges NFR and FOM do not move in the same direction in each place. NFR(T) and FOM(T) = NFR(T)/TCFT(T) time paths can move in opposite vertical directions since TCFT(T) can change independently of NFR(T).[4] Note that (A1) is

[3]Unless all four equalities obtained in which case there would be no change in EOFOM.

[4]Average terminal cost per family can change independently of the number of families recruitable. (See the relationship for average terminal cost per family, p. A3 , verbally elaborated in note six to table I.) Also note that small changes in recruitables that require the addition or deletion of a viewing room may result in relatively large changes in TCFT. (See the relationship for average staff cost per family, p. A3 , verbally elaborated in note seven to Table I.

An exchange, for example, in which NFR increases in both places, while FOM decreases in both places, is possible and could occur as follows. Movement in one place one period forward on an increasing NFR time path requiring the addition of a viewing room would cause a large increase in TCFT at low levels of NFR, since the cost of staffing that viewing room would be spread over a relatively small number of family units; thus, the corresponding FOM time path would decrease (see figure A-1, e.g., quarters 8 and 9 of the FOM time path for Ann Arbor, which has an increasing NFR time path). Movement in the other place several periods backward on an increasing (in backward time) NFR time path could be accompanied by decreasing FOM if cable system penetration had increased very rapidly over the forward time period corresponding to this backward movement.

the dominant inequality since EOFOM has a square-law dependence on each sum of the set $\{\sum_{i=1}^{n} NFR_i : n = 1,2,\ldots,9\}$.

The exchange algorithm for an approximate solution would terminate when the sequence of expected overall figures of merit, defined on the domain of 362,800 assignments of show periods to places, remained below its attained maximum for a prespecified number of additional exchanges or all promising exchanges had been tried.[5]

Gains for Three Promising Exchanges and the Resultant Reordering for the Case of Nine Certain Showings

As an illustration of the potential gains from reordering the highest-payoffs-first sequence, three promising exchanges are subsequently presented for the case in which the subjective assignment of schedule-termination probabilities corresponds to certain completion of the nine showings in the schedule of scenario I (i.e., $p_n=0$; $n=1,2,\ldots,8$; $p_9=1$). The FOM time paths of figure A-I are used as a guide to identify promising exchanges.

The first exchange is the exchange of the first and second show periods between Kalamazoo/Battle Creek and Flint (i.e., show first in Flint, second in Kalamazoo/Battle Creek). Post- and pre-exchange numbers recruitable and figures of merit are:

$NFR_2' = 387$, $NFR_1 = 381$, $\qquad NFR_1' = 249$, $NFR_2 = 248$

$FOM_2' = 13.27$, $FOM_1 = 12.92$, $\qquad FOM_1' = 8.72$, $FOM_2 = 8.65$

(Primes represent post-exchange values, subscripts designate periods of show, values are computed from the mathematical relationships for scenario I on p. A2-A4).

[5]The problem of how close the approximation would be to the optimal solution has not been addressed. All that is known is that the approximate solution will be better, probably much better, than the initial ordering. Note that the approximate solution arrived at by the proposed algorithm is a function of the initial ordering and what exchange of all promising exchanges is selected at each step, since each selection reduces the set of future exchanges that will satisfy at least one of the decision inequalities (A1) and (A2). This interdependence among decision stages suggests the complexity of the problem of formulating an efficient algorithm to compute the exact optimal ordering.

After the first exchange, the values of NFR and FOM for the constituent showings of the resultant schedule are:

Show Period	1	2	3	4	5	6	7	8	9
NFR	249	387	217	119	132	152	99	42	32
FOM	8.72	13.27	7.35	4.08	4.12	2.98	1.99	0.68	0.58

EOFOM = $FOM^{(9)}$ = 41.22 after the first exchange (computed from the $FOM^{(n)}$ relationship on p.A10;c.f., $FOM^{(9)}$ = 40.86 for the highest-payoffs-first schedule).

The second exchange is the exchange of the third and ninth show periods between Saginaw and Muskegon (i.e., show third in Muskegon and ninth in Saginaw). Post- and pre-exchange numbers recruitable and figures of merit are:

$NFR_9' = 247$, $NFR_3 = 217$, $NFR_3' = 47$, $NFR_9 = 32$

$FOM_9' = 9.63$, $FOM_3 = 7.35$, $FOM_3' = 1.11$, $FOM_9 = 0.58$

After the second exchange, the values of NFR and FOM for the constituent showings of the resultant schedule are:

Show Period	1	2	3	4	5	6	7	8	9
NFR	249	387	47	119	132	152	99	42	247
FOM	8.72	13.27	1.11	4.08	4.12	2.98	1.99	0.68	9.63

$FOM^{(9)}$ = 43.72 after the second exchange.

The third exchange is the exchange of the fourth and seventh show periods between Jackson and Ann Arbor (i.e., show fourth in Ann Arbor and seventh in Jackson). Post- and pre-exchange numbers recruitable and figures of merit are:

$NFR_7' = 132$, $NFR_4 = 119$, $NFR_4' = 98$, $NFR_7 = 99$

$FOM_7 = 4.42$, $FOM_4 = 4.08$, $FOM_4' = 2.15$, $FOM_7 = 1.99$

After the third exchange, the values of NFR and FOM for the constituent showings of the resultant schedule are:

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Show Period	1	2	3	4	5	6	7	8	9
NFR	249	387	47	98	132	152	132	42	247
FOM	8.72	13.27	1.11	2.15	4.12	2.98	4.42	0.68	9.63

$FOM^{(9)}$ = 44.42 after the third exchange.

After three exchanges then the reordered schedule may be written as:

Place	Period	NFR	$TCFT^6$	FOM
Flint urbanized area	4/75-7/75	249	$28.56	8.72
Kalamazoo urbanized area/ Battle Creek city	7/75-10/75	387	$29.16	13.27
Muskegon city	10/75-1/76	47	$42.34	1.11
Ann Arbor city	1/76-4/76	98	$45.58	2.15
Bay City urbanized area/ Midland city	4/76-7/76	132	$32.04	4.12
Grand Rapids city/Wyoming city	7/76-10/76	152	$51.01	2.98
Jackson urbanized area	10/76-1/77	132	$29.86	4.42
Lansing city	1/77-4/77	42	$61.76	0.68
Saginaw urbanized area	4/77-7/77	247	$25.65	9.63
OVERALL		1,486	$33.45	44.42

Comparison with the highest-payoffs-first schedule of scenario I reveals that total cost per family unit trained has been reduced from $34.80 to $33.45 over the complete bicycling schedule of nine showings, and that the number of family units trained over the schedule has been augmented from 1,422 to 1,486. Thus,

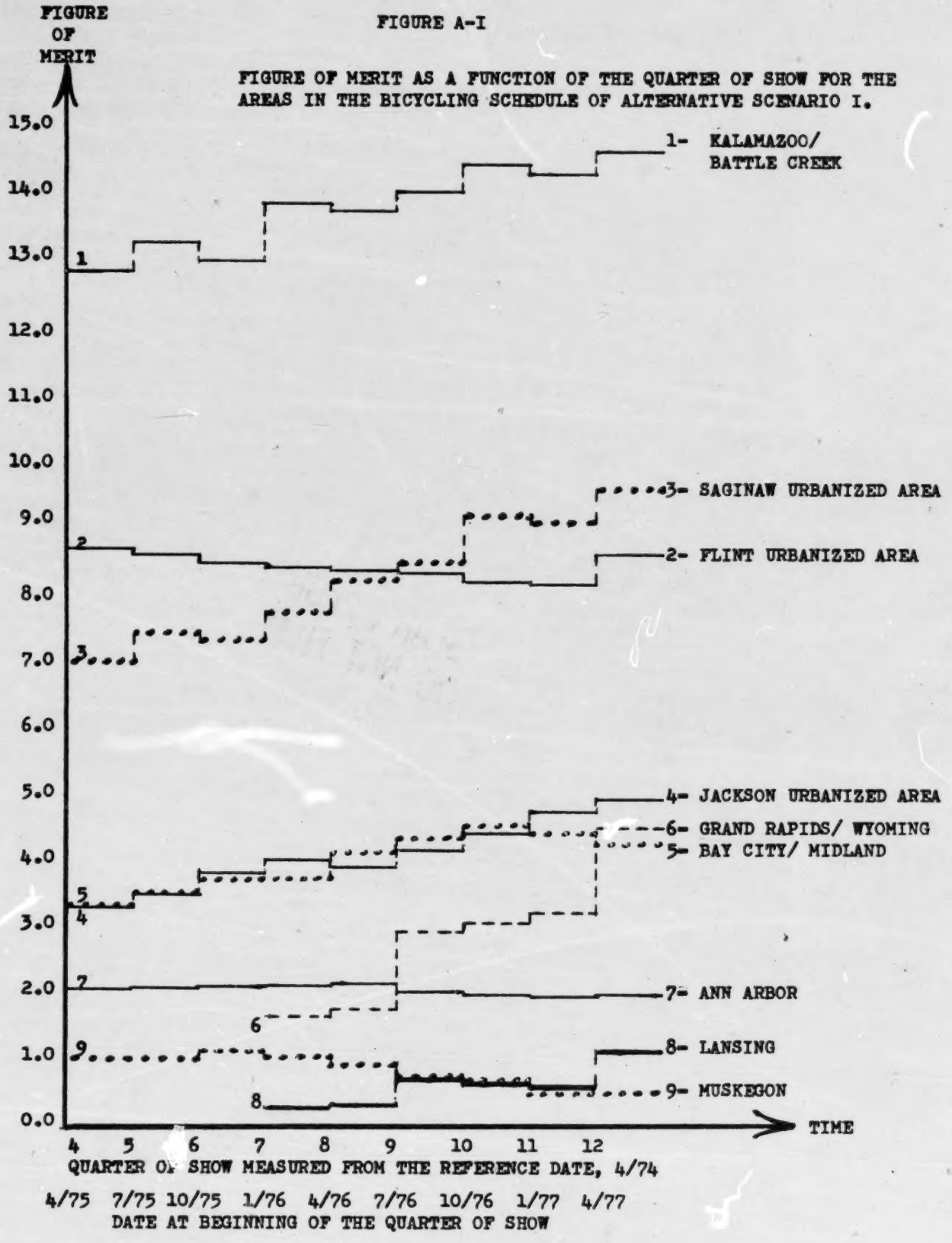
[6] $TCFT_i = NFR_i/FOM_i$; $i = 1,2,\ldots,9$. $TCFT^{(9)} = \sum_{i=1}^{9} (TCFT_i \times NFR_i) / \sum_{i=1}^{9} NFR_i$

after only three exchanges of show periods among places, the reordered schedule allows a cost reduction of $1,920 ($1.35x1,422) in the cost of training the same number of family units as trained in the highest-payoffs-first schedule, and allows the training of 64 additional family units with the same number of showings of the training series over the same two and one-half year time horizon.

Several more exchanges are indicated by the FOM time paths of figure A-I. Gains from additional exchanges will diminish.

FIGURE A-I

FIGURE OF MERIT AS A FUNCTION OF THE QUARTER OF SHOW FOR THE AREAS IN THE BICYCLING SCHEDULE OF ALTERNATIVE SCENARIO I.



APPENDIX B

EQUIPMENT AND OPERATING COSTS FOR THE NOMINAL COST-SHARED GOVERNMENTAL STUDIOS OF SCENARIOS VI AND VII

Equipment Inventory of the Nominal Monochrome Studio

Capital costs of equipment for the nominal monochrome studio of scenarios VI and VII are listed below. The equipment configuration implicit in this list is merely a point of departure designed around the video production needs encountered in production of the foster parent training series. Considerable needs-assessment, planning, and design would be required prior to proposal of a configuration to best meet video production needs of several public agencies, municipal departments, and local governments. Prices for this inventory are those of Sony, Ampex, Dynair Electronics, Laird Telemedia, and Century Strand corporations in late 1973/early 1974.

Televising, video recording and reproducing:

2 monochrome studio cameras with control units .....@$1,325/camera	$ 2,650
2 tripod and dolly ensembles .....@$345/ensemble	$ 690
2 zoom lenses .....@$1,400 and $550, respectively	$ 1,950
2 wide-angle lenses .....@$81/lens	$ 162
2 portable video cameras and ½" helical scan portable VTRs .....@$1,897/camera and VTR	$ 3,794
2 1-inch video tape record/reproduce helical scan units with assemble and insert editing capabilities .....@$6,500/unit	$13,000
1 3/4-inch videocassette record/reproduce unit (color capable)	$ 1,525

Switching; Special Effects; Monitoring; Audio Mixing, Recording, Reproducing, and Intercom:

1 production console comprising a video switcher, special effects generator (fading, lap dissolving, superimposing and wiping), video and audio monitors, junction unit, and audio mixer	$ 3,186
3 microphones .....@$133/microphone	$ 400
1 audio reel-to-reel record/reproduce unit	$ 650
2 intercom headsets .....@$75/headset	$ 150

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Integrating Film and Slides (Film and Slide Chain):

1 super 8mm-film projector	$ 1,600
1 16mm-film projector	$ 2,275
1 35mm-slide projector	$ 325
1 optical multiplexer including optical transfer assembly, bench pedestal, and local control	$ 1,325
3 projector equipment stands and shelves	$ 600
adapters, remote control units, rack for control equipment, lamp control panel	$ 560

Character Generation:

1 character generator including keyboard and data cassette-recorder interfaced to the character generator	$ 4,270

Control:

1 sync generator	$ 900
1 pulse distribution amplifier	$ 210
1 waveform monitor	$ 1,500

Modulation:

1 audio/video modulator (standard VHF, sub-, mid-, or super-band)	$ 1,250

Lighting:

1 studio lighting package	$ 800

Other:

equipment racks, cables, test sets, etc	$ 1,000
installation, test, and training	$ 4,500
TOTAL (NOMINAL MONOCHROME EQUIPMENT)	$49,272

Annual Operating Costs of the Nominal Monochrome Studio

Annual operating costs of the nominal monochrome studio of scenarios VI and VII for its first few years of operation, while equipment maintenance and replacement is minimal, are $58,325. Operating costs include cost of a permanent studio staff of one producer/director, one technical director, one studio engineer (sophisticated and experienced technician), one technician/operator, two studio crew members, and one media specialist (to assist public agencies in the preparation of programming material). Staff costs are for an operating level of thirty

hours per week. Other operating costs included are costs of studio rental; equipment maintenance and replacement; electric power; telephone; program production sets, props, and supplies; fire, and liability insurance.

Equipment Inventory of the Nominal Color Studio

The Cable Television Information Center of The Urban Institute, Washington, D.C. has previously published an elaborate equipment inventory for a color studio that is based on prices of equipment mainly supplied by International Video Corporation (IVC) of Sunnyville, California. Aside from the monochrome-color difference, this equipment is more expensive and affords higher quality productions than the equipment listed above in the inventory of the nominal monochrome studio. The equipment listing appears in Local Government Uses of Cable Television published in 1974 by the Cable Television Information Center. It is adopted herein as appropriate for the color studio of scenarios VI and VII and is relisted below unchanged except for aggregation of installation, test, documentation, and training charges.

2 IVC-150B	$32,100
2 camera support package	$ 1,980
1 IVC-92B	$ 8,825
3 internal encoders	$ 1,800
2 proj. pedestals	$ 700
1 M-203 multiplexer	$ 1,895
1 IVC-4003 light control	$ 1,400
3 lens iris assy	$ 105
3 heat filters	$ 45
3 projection diffusers	$ 45
1 film chain test set	$ 80
1 camera test chart set	$ 50
5 W.E. headsets	$ 335
1 alignment tape	$ 190
2 IVC-870-C VTRs	$16,000
1 IVC-150 spare tubes	$ 3,120
1 IVC-800 spare heads	$ 660

1 IVC-4009 remote controls	$ 400
1 video production switcher	$ 3,840
5 equipment consoles	$ 1,500
1 audio mixer	$ 500
1 speaker system	$ 60
1 audio distribution amplifier	$ 440
2 16mm. projectors	$ 3,920
3 dual 9" monochrome monitors	$ 2,655
1 12" color monitor/receiver	$ 575
1 waveform monitor	$ 1,575
1 sync generator system	$ 1,800
1 video distribution amplifier	$ 475
1 pulse distribution system	$ 1,850
1 35mm. slide projector	$ 1,195
4 microphones	$ 400
1 audio cartridge record/playback unit	$ 700
1 microphone stand	$ 45
1 portable lighting kit	$ 680
installation, test, documentation, and training	$ 5,860
TOTAL (NOMINAL COLOR EQUIPMENT)	$97,800

Annual Operating Costs of the Nominal Color Studio

Annual operating costs of the nominal color studio of scenarios VI and VII for its first few years of operation, while equipment maintenance and replacement is minimal, are $63,280. Operating costs include the cost of the same permanent studio staff as for the nominal monochrome studio at the same operating level of 30 hours per week. Other operating costs for equipment maintenance and replacement, electric power, and production sets and supplies are augmented over those for the nominal monochrome studio; operating costs for studio rental, telephone, and insurance are the same for both nominal studios.

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APPENDIX C

COMPLETION OF A LOCAL CABLE NETWORK FROM AN INTEGRATED TECHNICAL DESIGN FOR URBANIZED LANSING AND POPULOUS OUTLYING TRI-COUNTY LOCALITIES FOR THE NETWORK DISTRIBUTION OF SCENARIO VII

Completion of a Local Cable Network from an Integrated Technical Design

This appendix contains a map and capital costs for the completion of a local cable network in the Lansing extended urbanized area of the State of Michigan. Completion of a local cable network is appropriate since the network design must evolve from two fixed points currently upon the cable landscape: the cable system already constructed in the city of East Lansing and a franchise award already made in the neighboring city of Lansing. Given these two constraints, completion of the local cable network is based on a technically integrated design that calls for minimal facility and equipment redundancy and maximal facility and equipment cost sharing. Tower, antennas, headend equipment, communications control and processing computer hardware and software, studio equipment, and test equipment are assumed shared, in varying measures, among systems of the network. Thus communication capabilities are afforded to users at a lower cost.

Concurrent Realization of Efficiency, Economy, Equity, and Innovation Goals

Advantages of efficiency and economy consequent to the implementation of a technically integrated design are unlikely to be realized in the absence of some supervening authority to coordinate cable developments in the extended urbanized area. Cost-sharing among different cable operators must be coordinated, and franchising authorities must be coordinated as cable systems of the integrated design span political jurisdictions.

Equity and innovation goals as well as economy and efficiency goals can be served by the presence of a coordinating authority. Cost-sharing insured by legal contract reduces capitalization entry barriers for smaller local companies who may be more responsive to communication needs of channel programmers and subscribers alike. Varying ownership and operating forms can be encouraged across systems of the network. Systems that are publicly owned and operated will likely

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rededicate revenues to the advantage of different publics than those who benefit from revenue rededications of private companies. Systems that are privately owned and operated by larger companies with larger margins can afford the higher risks that accompany organizational, managerial, technological, or social innovation. In short, the supervening authority, acting as a centralized decision maker, can, through its coordinative role, concurrently attempt to reap the benefits of efficiency and economy deriving from implementation of an integrated design, and the benefits of equity and innovation deriving from a variegated pattern of ownership and operation across systems of the network.

Network Design in Relation to a Planning Process

The particular design put forth here does not emerge from a planning process. It is not a design based on anticipated communication traffic in view of projected uses by prospective private and public users in the area covered by the network; rather, it is only a slight alteration of what is likely to happen under commercial cable television incentives, and must be understood as all that is possible in the absence of an agency to assist public entities in their expression of demand for developing communication services at an early enough time to affect the plans of corporate service providers.

Ideally, a two-step process of service-utility assessments and projected uses by public entities, followed by network design and pricing structure determination by cable companies, would be iterated until projected uses stabilized in the face of specified use prices. The particular network design of this appendix and the associated determination of lease rates in scenario VII would be helpful in an early stage of this iterative planning process. Lease rates based on this network design were determined in scenario VII for the category of use in which program originations from a location remote from a headend are distributed network-wide by a member of the class of users consisting of all

collective entities whose missions had been sanctioned through the political process (viz., public agencies, municipal departments, local governments, and schools).

Communication Capacities Afforded

Communication capacities afforded by this design, at the capital costs subsequently presented, are seventy-eight 6-MHz channels in each of the two central districts,[1] thirty-nine 6-MHz channels in each of the other seven peripheral districts and outlying localities, and thirty-one 6-MHz channels on the interconnection system, with the exception of the seven 6-MHz data-return channels,[2] one from each of the seven peripheral districts and outlying localities to the communication control center in the city of Lansing.

Operation of the network is elaborated in the notes to the listing of capital costs which follow the overlayed map of the area served.

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[1]See figure C-I (overlayed map on following page). There are two central districts, and five outlying localities in the network. One central district contains the distribution plant in Lansing city and its extensions into contiguous areas of Delhi, Delta, and DeWitt townships; the other central district contains the distribution plant in Grand Ledge city and part of Delta township; the other contains the distribution plant in DeWitt city and part of DeWitt township. Outlying localities included are the cities of Charlotte and Potterville, St. Johns, Mason, Eaton Rapids, and Williamston.

[2]Capital costs associated with these data return channels of the interconnection system were not included in the determination of cost-related lease rates for one-way distribution in scenario VII.

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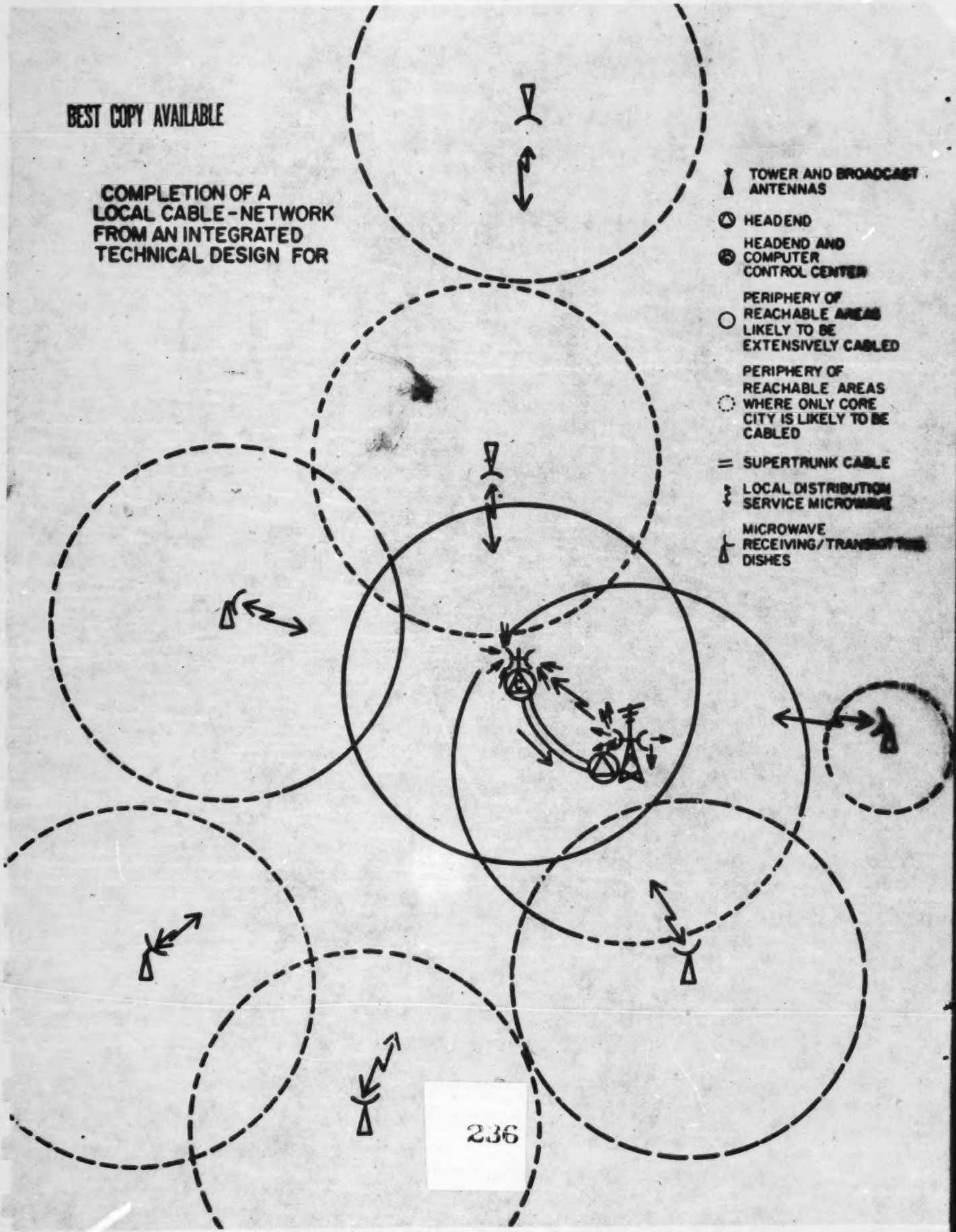
COMPLETION OF A LOCAL CABLE-NETWORK FROM AN INTEGRATED TECHNICAL DESIGN FOR


TOWER AND BROADCAST ANTENNAS
HEADEND
HEADEND AND COMPUTER CONTROL CENTER
PERIPHERY OF REACHABLE AREAS LIKELY TO BE EXTENSIVELY CABLED
PERIPHERY OF REACHABLE AREAS WHERE ONLY CORE CITY IS LIKELY TO BE CABLED
SUPERTRUNK CABLE
LOCAL DISTRIBUTION SERVICE MICROWAVE
MICROWAVE RECEIVING/TRANSMITTING DISHES

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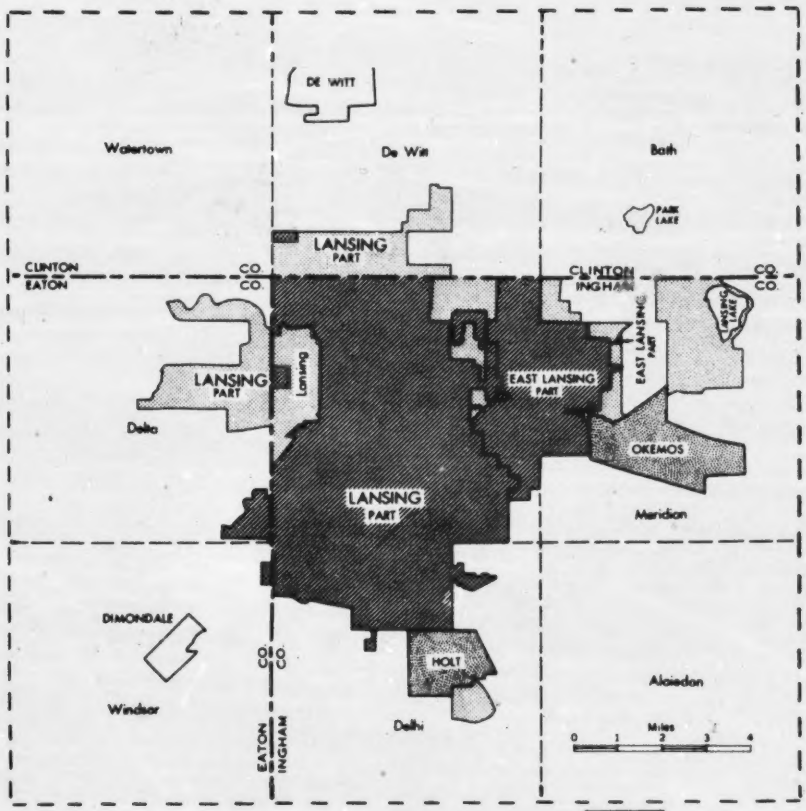
ST. JOHNS

URBANIZED LANSING AND POPULOUS OUTLYING TRI-COUNTY LOCALITIES



GRAND LEDGE

WILLIAMSTON

POTTERVILLE

MASON

CHARLOTTE

EATON RAPIDS

ANNOTATED CAPITAL COSTS FOR COMPLETION OF A LOCAL CABLE NETWORK FROM AN INTEGRATED DESIGN IN THE LANSING EXTENDED URBANIZED AREA

Microwave Subsystem of the Interconnection System

Central Transmitter Site at the East Lansing Headend[1]

Array of 31 one-watt single-channel transmitters, transmitter monitor, and transmitter redundancy[2]	$246,700
Two 400' dual polarized circular waveguide runs @$4,684/run	9,368
Automatic dehydrator, accessories	600
Antennas, vertical mounts, radomes[3]	20,080
	$276,748

Receiver Site at the Lansing Headend[4]

50' roof-top tower, installed	$ 13,000
8, 4'-diameter plane polarized dishes with mounts and radomes	6,840
40-channel tower-mounted broadband receiver; receiver monitor and test box	7,740
1 receiver-cable interface unit	1,350
	$ 28,930

Receiver/Transmitter Sites at Other Localities[5]

At each of 4 other sites[6]:

50' roof-top tower, installed	$ 13,000
1, 10'-diameter dual polarized transmitting/receiving dish, mount and radome	2,940
50' elliptical waveguide run with pressurization	1,212
40-channel tower-mounted broadband receiver, receiver monitor and test box, and receiver-cable interface unit	9,270
Single-channel data transmitter and heterodyne processor[7]	9,000
	$ 35,422

$141,688

At each of 3 other sites:

Installed 150' guyed or self-supporting tower, land and equipment shack	$ 24,500 - 30,500[8]
1, 10'-diameter dual-polarized transmitting/ receiving dish, mount and radome	2,940
150' elliptical waveguide run with pressurization	2,206
40-channel tower-mounted broadband receiver, receiver monitor and test box, and receiver-cable interface unit	9,270
Single-channel data transmitter and heterodyne processor[7]	9,000
	$ 47,916 - 53,916

$143,748 - 161,748

Entire Microwave Subsystem

Path surveys	$ 9,000
Radio equipment and waveguide installation, antenna installation and alignment	50,000
Proof of performance	7,500
	$ 66,500

MICROWAVE SUBSYSTEM TOTAL COST.....$657,514 - 675,614
($666,614 nominal)

Cable Subsystem of the Interconnection System

1" aerially installed supertrunk, 2 trunk amplifiers per mile[9]	@$9,000/mile for 7 miles....$56,000

INTERCONNECTION SYSTEM TOTAL COST.....$713,614 - 731,614
($722,614 nominal)

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Distribution Plant in the Lansing City/Delhi Township/Delta Township/DeWitt Township Central District

Lansing city distribution plant (DTDF, 350 strand miles, feeder to trunk ratio=3:1, 15% underground):[10]

Aerial dual 3/4" unjacketed trunk with electronics,[11] installed
.....@$13,000/mile[12] for 76 miles[13].....$ 988,000

Aerial dual 1" unjacketed supertrunk with electronics, installed
.....@$13,500/mile for 5 miles.....$ 67,500

Aerial dual 1/2" unjacketed feeder with electronics, installed
.....@$ 7,500/mile for 245 miles.....$1,837,500

Buried conduit in asphalt/concrete with 3/4" dual trunk, jacketed with flooding compound, including electronics
.....@$29,000/mile for 15 miles.....$ 435,000

Buried conduit in asphalt/concrete with 1/2" dual feeder, jacketed with flooding compound, including electronics
.....@$23,500/mile for 43 miles.....$1,010,500

Dropline associated costs (converter, A/B switch, subscriber transformer, ground rod, connector block, dropline cable, directional tap, and installation labor)
.....@$77/household for 24,000 households[14].....$1,848,000

Lansing city distribution plant.....$6,186,500

Extensions of Lansing city plant into the contiguous areas of Delhi, Delta, and DeWitt townships (DTDF, 12 miles of extended trunks, feeder to trunk ratio=3:1, all aerial):[15]

Aerial dual trunk with electronics, installed
.....@$13,000/mile for 12 miles.....$ 156,000

Aerial dual feeder with electronics, installed
.....@$ 7,500/mile for 36 miles.....$ 270,000

Dropline associated cost
.....@$77/household for 4,952 households.....$ 381,304

Extensions of Lansing city distribution plant.....$ 807,304

Additional Distribution Plants in the East Lansing, Meridian Township/Okemos, Delhi Township/Holt Central District[16]

Meridian township/Okemos:[17]

Trunk and feeder costs .....@ $9,224/strand mile for 110 strand miles.....	$1,014,640
Supertrunk costs[18] .....@$13,500/mile for 4 miles.....	$ 54,000
Dropline-associated costs[19] .....@$77/household for 4,536 households.....	$ 349,272
	$1,417,912

Delhi township/Holt:[20]

Trunk and feeder costs .....@ $9,224/strand mile for 66 strand miles.....	$ 608,784
Supertrunk costs[21] .....@$13,500/mile for 4.5 miles.....	$ 60,750
Dropline-associated costs .....@$77/household for 2,811 households.....	$ 216,392
	$ 885,926

Distribution Plants in Peripheral Districts and Outlying Localities[22]

Grand Ledge city/Delta township:[23]

Trunk and feeder costs .....@ $6,018/strand mile for 83 strand miles.....	$ 499,494
Supertrunk costs[24] .....@ $9,000/mile for 2.5 miles.....	$ 22,500
Dropline-associated costs .....@$60/household for 2202 households.....	$ 132,120
	$ 654,114

Charlotte city/Potterville city:

Trunk and feeder costs[25] .....@ $6,018/strand mile for 60 miles.....	$ 361,080
Supertrunk costs[26] .....@ $9,000/mile for 5.5 miles.....	$ 49,500
Dropline-associated costs .....@$60/household for 1,586 households.....	$ 95,160
	$ 505,740

DeWitt city/DeWitt township:[27]

Trunk and feeder costs
.....@$6,018/strand mile for 57 strand miles.....$343,026

Dropline-associated costs
.....@$60/household for 1,500 households.....$ 90,000

$433,026

St. Johns city:

Trunk and feeder costs
.....@$6,018/strand mile for 42 strand miles.....$252,756

Dropline-associated costs
.....@$60/household for 1,112 households.....$ 66,720

$319,476

Mason city:

Trunk and feeder costs
.....@$6,018/strand mile for 34 strand miles.....$204,612

Dropline-associated costs
.....@$60/household for 911 households.....$ 54,660

$259,272

Eaton Rapids city:

Trunk and feeder costs
.....@$6,018/strand mile for 28 strand miles.....$168,504

Dropline-associated costs
.....@$60/household for 749 households.....$ 44,940

$213,444

Williamston city:

Trunk and feeder costs:[28]
.....@$4,500/strand mile for 16 strand miles.....$ 72,000

Dropline-associated costs
.....@$60/household for 433 households.....$ 25,980

$ 97,980

Lansing Headend

10 heterodyne processors[29]
.....@$1,500/processor.....$ 15,000

Character- and program-schedule-generation equipment[30].....$ 5,000

Control and processing stored-program computer, input/output processor, data modulator and demodulators, peripherals[31].....$150,000

Basic computer software[32].....$200,000

Additions to the East Lansing Headend (other than transportation system additions)[33]

12 channel processors[34]
.....@$1,500/processor.....$ 18,000

Studios[35]

Equipment for a major all-color studio in Lansing city.....$200,000

Equipment for 3 color mini-studios in Lansing city.....$ 90,000

Equipment for a color studio in Meridian township and a color mini-studio in Williamston city.....$ 60,000

Equipment for small color studios in Grand Ledge city/Delta township and DeWitt township.....$ 40,000

Equipment for small color studios in Charlotte city/Potterville city, Eaton Rapids city, and Mason city.....$ 40,000

Equipment for a color mini-studio in St. Johns city.....$ 30,000

Total equipment costs for studios.....$490,000

Test Equipment, Spare Parts, and Contingencies

Test equipment for all distribution plants, headend additions, the transportation subsystem, and all studios[36].....$ 65,157

Spare parts and contingencies for all distribution plants, headend additions, the transportation subsystem, and all studios[37].....$297,005

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NOTES TO CAPITAL COSTS FOR COMPLETION OF A LOCAL CABLE NETWORK FROM AN INTEGRATED DESIGN IN THE LANSING EXTENDED URBANIZED AREA

[1]All off-air signals, at least two different groups of locally originated signals, FM signals, and data signals are transmitted from this central site.

[2]Modulated signals require only 6-MHz of bandwidth since the modulation scheme is SSB-SC-AM. One-watt single-channel transmitters are used because fade margin is inadequate and reliability very low when the 100 miliwatt output of a multichannel transmitter employing the same modulation scheme is divided among the eight outgoing paths of the local network, three of which terminate at receiving sites almost twenty miles away.

[3]Eight 10'-diameter plane polarized antennas with vertical mounts and heated fiberglass radomes. 10'-diameter transmitting dishes provide the narrow beamwidth required to avoid interference at adjacent receiver sites where beams carrying different but overlapping signal groups are received. (Some locations may receive off-air and Lansing-originated signals; some may receive off-air and East Lansing-originated signals, and others may receive off-air signals, some Lansing-originated signals, and some East Lansing-originated signals.) Because adjacent receiver sites are separated at least 15 degrees in azimuth, and because reception at adjacent sites is on orthogonal polarizations, isolation at the receiving antennas is at least 55 db.

[4]Eight microwave beams are received at the Lansing headend. The beam from East Lansing carries all of the off-air channels, some designated and some leased-access channels originating in East Lansing, and a return data channel from East Lansing. The off-air, designated, and leased-access channels are distributed via the Lansing/three-township plant. The return data is processed, stored, or

retransmitted under control of the central computer for the network, housed at the Lansing headend. Each of the other seven beams received at the Lansing headend carries a return data channel from one of the other peripheral or outlying localities of the local network.

[5]Other peripheral districts and outlying localities receive all off-air channels, some designated and/or some leased-access channels from Lansing and/or East Lansing by way of microwave beams from the East Lansing tower. Signals originating in Lansing are inserted into these beams via the one-way supertrunk run from the Lansing headend to the East Lansing headend. Each of these other peripheral districts or outlying localities transmits back one data channel (6-MHz available) to the Lansing central computer center.

[6]In each of these four sites, it is assumed that suitable roof-top space can be found for a 50' self-supporting tower by which microwave signals can be acquired. In several instances an existing water tower may suffice rendering this cost unnecessary. At each of the other three remote locations, a 150' guyed or self-supporting tower is assumed to be needed.

[7]Downstream video, FM, and data signals are received on channels 2 through 0 translated to the CARS band. Return data signals are transmitted on channels P through W translated to the CARS band. The heterodyne processor at a receive/transmit location remote from Lansing and East Lansing upconverts the return data channel to the superband. Return data signals are assigned to the super band so that currently available standard single-channel transmitters and broadband receivers, which are not designed for low band signals, can be used. These heterodyne processors would be housed in the localities' origination studio which is assumed to be located in the building on which the roof-top tower is constructed.

[8]The lower bound corresponds to a 150' guyed tower erected on 1.5 acres of farmland, purchased at $1,000 per acre. The upper bound corresponds to a 150' self-supporting tower erected on 1/20 acre of urban land, purchased at $20,000 to $60,000 per acre.

[9]All signals originated in Lansing are transported to other locations of the network via the supertrunk, and subsequent insertion, as required, into microwave beams.

[10]These are best approximations available at the time of writing for the plant to be built in Lansing city beginning in the second quarter of 1975. The intent is not to undistortedly mirror the planned Lansing plant, but rather to specify a plant and costs that will cover variations in distribution cost likely to be encountered in urban areas of population and size comparable to Lansing.

[11]Three trunk amplifiers (2 with AGC or ASC) and 2 bridger amplifiers per mile of trunk, 2 trunk amplifiers per mile of supertrunk, 3 line extenders per mile of feeder.

[12]Per cable-mile (and strand-mile) costs are 'upper boundish' mainly because most cable plants will have fewer or less elaborate amplifiers per mile than those spedified in note 11, and because trunk and bridger amplifiers in the same housing will frequently replace the separate trunk and bridger amplifiers specified in note 11 at a net reduction in cost. Cable, electronics, and installation costs are from COST ANALYSIS OF CATV COMPONENTS, Gary Weinberg, June 1972 (NTIS# PB 211 012). The cost of coaxial cable and the cost of installation have been inflated 10%.

[13]The approximations of a feeder-to-trunk ratio of 3:1 and 350 strand miles, and the assumption that 1/3 of total trunk miles are paralleled by feeder imply: 288 miles of feeder plant and 96 miles of trunk plant, 81 of which are aerial, with 76 dual trunk and 5 assumed dual supertrunk.

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[14]Our confirmation of the company projection of 50% ultimate penetration.

[15]Twelve miles of extended cable trunks is a 'guesstimate.' The densely populated areas contiguous to Lansing city in this central district of the network (with the exception of the populous area next to Holt which is served by extensions of the East Lansing Plant) have about 14,000 people in an area about 15% of the city area.

[16]These distribution costs are approximated by multiplying an approximate strand mileage by the equivalent cost of a strand mile. The approximate strand mileage is based on an average linear density of 90 homes per mile. The equivalent cost of a strand mile is that cost which when multiplied by the number of strand miles results in the cost of an all-aerial dual trunk dual feeder plant whose feeder to trunk ratio is 3.5:1. The per mile costs of aerial dual trunk and of aerial dual feeder used in this computation of the equivalent cost of a strand mile are respectively, $13,000/mile and $7,500/mile.

[17]The area wired is Okemos and that part of Meridian township in the Lansing urbanized area. Strand mile estimates are high inasmuch as actual household densities exceed 90 homes per mile.

[18]A dual supertrunk run extends from the headend of the East Lansing system to the populous area of Meridian township.

[19]For each district and outlying locality of the network, the number of households used to determine the dropline-associated costs represents 50% penetration of households in the area.

[20]The area wired is Holt and the part of Delhi township in the Lansing urbanized area. Strand mile estimates are high inasmuch as actual household densities exceed 90 homes per mile.

[21]A dual supertrunk run extends from the headend of the East Lansing system to Holt and the adjacent populous area of Delhi township.

[22]The equivalent cost of a strand mile used to determine the distribution costs for the peripheral districts and outlying localities of the network is that cost which when multiplied by the number of strand miles results in the cost of an all-aerial single trunk single feeder plant whose feeder-to-trunk ratio is 3.5:1 and whose trunk mileage is paralleled by feeder for 1/5 of its length. The per mile costs of installed trunk with electronics and installed feeder with electronics used in this computation of equivalent cost per strand mile, are, respectively, $8,667 and $5,000 (2/3 of the corresponding dual trunk and dual feeder costs).

The number of strand miles used in this determination of distribution costs is based on an average linear density of 65 homes per mile. Strand mile estimates are high inasmuch as actual household densities exceed 65 homes per mile.

[23]The area wired is Grand Ledge city and the populous part of Delta township outside the Lansing urbanized area.

[24]A 2.5 mile supertrunk run connects the population pockets in Grand Ledge city and Delta township.

[25]It appears feasible, without detailed design calculations, to use 0.5"-diameter trunk and 0.412"-diameter feeder in the smaller Potterville distribution area. This would reduce the combined trunk and feeder cost shown.

[26]A 5.5 mile supertrunk run connects Charlotte and Potterville cities.

[27]The area wired is DeWitt city and the populous part of contiguous DeWitt township outside the Lansing urbanized area.

[28]The Williamston city distribution plant can be circumscribed by a radius of 1.5 miles, permitting the use of 0.5"-diameter trunk and 0.412"-diameter feeder in lieu of 0.75"-diameter trunk and 0.5"-diameter feeder. The equivalent per strand-mile cost of a turnkey plant with these reduced-size cables is $4,500.

[29]These processors upconvert signals originating in Lansing before they are reinserted on downstream channels of Lansing trunks. The 10 Lansing-originated signals may, for example, be 2 public access signals, 3 educational signals, 1 local government signal, and 4 leased-access signals, 2 of which are originated commercially and 2 of which are originated by agencies of state government. These Lansing-oriented signals are also inserted directly on the supertrunk for conveyance to the E. Lansing headend and subsequent selective insertion into microwave beams for transmission to other districts and outlying localities of the network. (The upconverters for Lansing-originated signals are necessary. Lansing-originated signals cannot be distributed downstream via reception of the beam from E. Lansing because the amplifier cascade on this route is too long--from the most distant origination point in Lansing, over the supertrunk, back by the beam, downstream to the most distant receiver locations.)

[30]Each of the Lansing and East Lansing systems have character- and program-schedule-generation equipment. Other time, weather, news-and-stock-wire equipment for automatic originations are shared among all systems composing the network.

[31]A system with about 96 kilobytes of 1 microsecond memory should be adequate to provide a 5-10 second response time when up to 90,000 subscribers (approximately 88% average network penetration) select from the service examples listed in note 32. (This $150,000 capital cost is not included in the determination of lease rates for the one-way local electronic network distribution of scenario VII.)

[32]Software would include a real-time operating system with polling, data collection and storage routines; and several applications routines for services such as restricted-channel access, opinion and channel polling, sensing, monitoring and controlling, automatic billing, short coded messages, and system

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diagnostics. (This $200,000 capital cost is not included in the determination of lease rates for the one-way local electronic network distribution of scenario VII.)

[33]The East Lansing system has just been constructed. Capital costs associated with the tower, headend, and distribution plant are about $1,500,000.

[34]These processors process, and translate where necessary, the 10 Lansing-originated signals received via the supertrunk, the network interrogating signals also received via the supertrunk, and the return data signals received from East Lansing. Each processor then drives a single-channel microwave transmitter. The Lansing-originated signals are sent to other districts and outlying localities of the network while the East Lansing data return signal is sent back to Lansing via the microwave subsystem.

[35]Since the overriding presumption is that development is coordinated from an integrated design for the region, studio equipment is cost shared among a maximum of 3 districts or outlying localities. Cost sharing of studio equipment is indicated for places which are geographically proximate. Actual cost-sharing arrangements would be determined by the particular pattern of ownership and financing that evolves in the network region, and by the effectiveness of the coordinating authority who guides development. Cost-shared equipment would be portable equipment transported from site to site and used on a time-shared basis.

[36]A reasonable allowance for test equipment would be 1% of distribution, headend, interconnection system, and studio costs. Only 1/2% is allocated here under the assumption that some test equipment would be shared by operators in the various districts and localities of the network.

[37]2% of distribution and headend costs and 5% of interconnection and studio costs are allocated for spare parts and contingencies.

APPENDIX D

POLICY-EXPLORATION SIMULATION MODEL FOR CABLE-DELIVERED PUBLIC INFORMATION SERVICES

Description of the Model and Its Relation to the Alternative Scenarios and Cost Analyses

In this appendix, a policy-exploration computer-simulation model is outlined that has been formulated to explore the consequences of alternative policies on the cost-effectiveness of delivering public information services over cable television systems or local cable networks. The general structure of the model is outlined with particular reference to the public information service of foster parent training. With the exception of the organization of client viewing (e.g. differential effects of place of viewing), the structure of this model is general enough to encompass all the alternative scenarios and cost analyses in section II of the report: the mathematical relationships of each scenario are part of the model's structure and the values of the cost parameters are part of its data base.

The model is designed to permit policy makers to address consequences of policy alternatives pertinent to:

- Dates of readiness of interconnection links.
- Emergence of patchwork or integrated-network configurations.
- Cost sharing of studios, studio equipment, and two-way terminal equipment among public agencies, local governments, municipal departments, and school boards.
- Alternative bases of lease-rate determination for public information service delivery.
- Level of recruitment of foster parents.
- Alternative partitions of social-service appropriations between cable-delivered and traditionally delivered training programs.

The present structure and operation of the model can be summarily understood with reference to the signal-flow diagram of figure D-I.[1] The signal flow

[1]This is a very aggregate representation; not all signal flows between the submodels are shown.

FIGURE D-I

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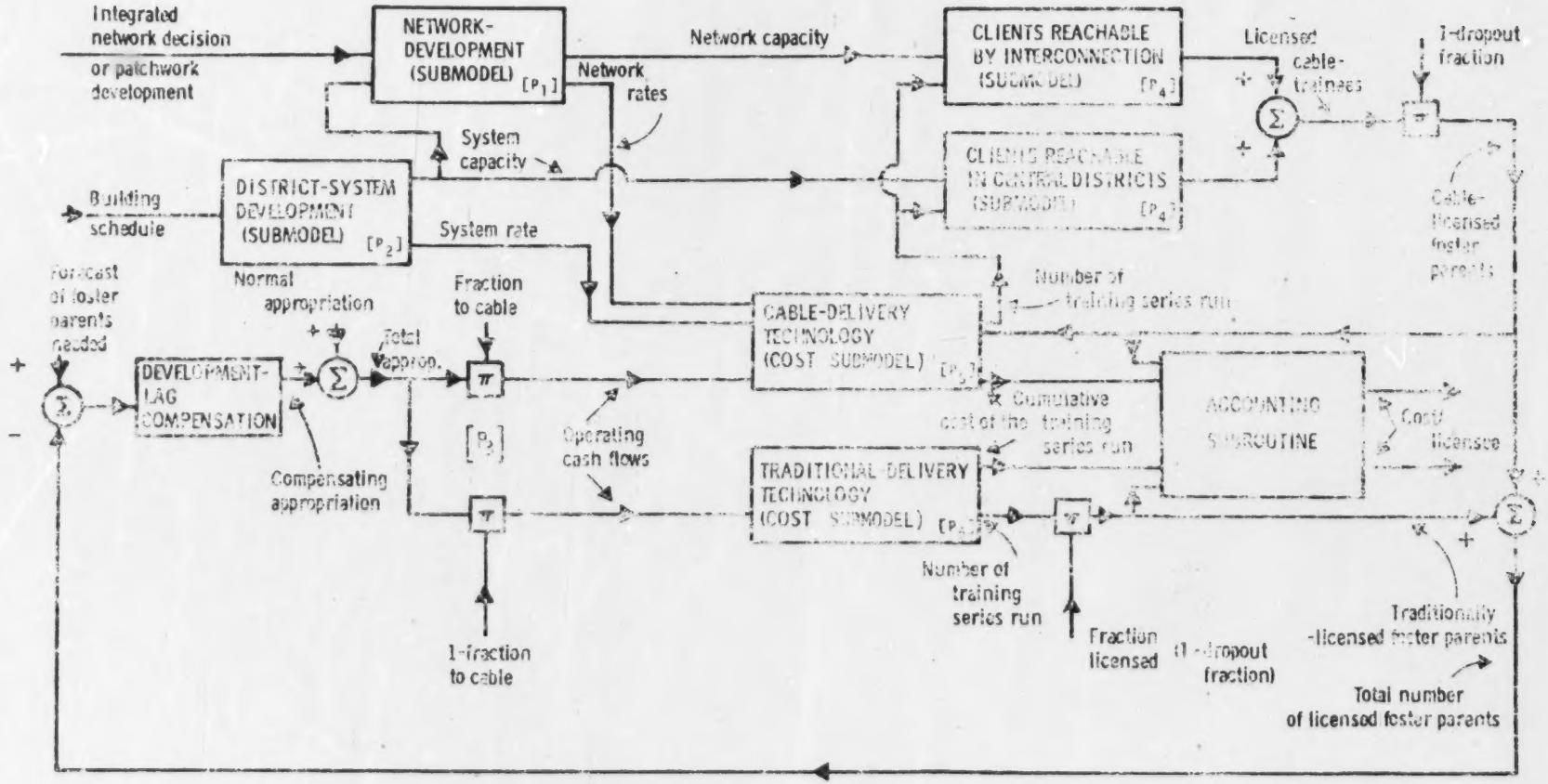
POLICY-EXPLORATION SIMULATION MODEL FOR CABLE-DELIVERED PUBLIC INFORMATION SERVICES



[P] POLICY EXPLORATION WITHIN THIS SUBSTRUCTURE PERTINENT TO:
P1 INTERCONNECTION DEADNESS, NETWORK CONFIGURATIONS, AND NETWORK LEASE-RATE DETERMINATIONS
P2 SYSTEM LEASE-RATE DETERMINATIONS
P3 ALTERNATIVE DELIVERY MODES
P4 RECRUITMENT
P5 COST SHARING OF FACILITIES AND EQUIPMENT

paths shown are traversed once each time increment of the simulation, say one-half year corresponding to one showing of the training series in one isolated place, or one place of a bicycled-tapes network.

As the model is stepped forward in time a series of appropriations for foster-parent training and licensing is generated (output of the second summing point from the left.) These appropriations are just sufficient to maintain a dynamic balance between the care-provider population of foster parents and the care-needing population of foster children. That is, during each time increment, the appropriation is just adequate to train and license that number of foster parents needed to redress any imbalance resulting from prior mismatches or new demands. The balancing technique relies upon a feedback control system containing development-lag compensation to offset delays incurred until cable system or network communication facilities are readied.

Two technologies of training may be utilized: cable-delivery or traditional delivery. Cable-delivery technology is incorporated as an auxilliary training technology in the caseworker-to-client process of licensing and incidental training.[2] Traditional delivery technology may be chosen by the model user as the one-to-one training technology of the caseworker-to-client interaction, or as a classroom training technology that is combined with and is ancillary to this interaction. Consequences of alternative allocations of the total appropriation between these training technologies may be explored by the model user as he/she selects a time vector of fractional appropriations allocable to cable delivery.

The number of training series that can be run in view of the appropriation and cost per series is checked within a cost submodel for each training technology. Relationships of each scenario for programming and production cost, average staff cost per family, distribution cost per family, and average terminal cost per

[2]For a description of this process, see section report, pp. 26-27.

family are part of the structure of the cable-delivery technology cost submodel.[3] Cost-sharing policy parameters, such as the cost-share factors for the governmental studio of scenarios VI and VII, appear in these submodels. In the cases of cable-delivered training that relies on leased-channel transmission, lease rates for single system or network distribution are inputs to the submodel. The output, number of training series run, triggers 'clients reachable' submodels for clients in central districts or outlying localities of a local electronic network spanning an extended urbanized area.

The core of each clients-reachable submodel is one or more predictive relationships for the number of trainees expected to be available within a given time frame in a community of specified characteristics. These relationships are now the trend extrapolations of scenarios I, II and IV for the number of family units expected to be recruitable into a cable-delivered training series, the conjectures of stepped-up recruitment in scenarios III and V, or the discounted recruitment targets of local agencies in scenarios VI and VII. Preferably, the current relationships would be replaced by a simultaneous equations submodel for forecasting numbers recruitable in view of the changing structure of foster parenting.[4] The structure of the clients-reachable submodels permits the exploration of recruitment policies. Actual training and licensing of clients who are reached by cable is conditioned upon the readiness of cable system or network communication facilities. Where these facilities are not yet constructed, their installation is modeled in system-development and network-development submodels.

Communication capacity of systems in phases of construction, and leased-access-channel rates for stand-alone systems, under construction or installed, are generated within the system-development submodel. The construction and expansion of cable systems in the central districts of the local network of scenario

[3]See Appendix A, pp. A1-A4, for example, for mathematical formulations of the cost relationships in scenario I.

[4]For a description of the changing structure and a partial specification of the simultaneous equations model alluded to, see Appendix A, pp. A6-A8.

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VII, and the leased-access-channel market for those systems are abstracted therein. Exploration of policies pertaining to lease rates are initiated in this submodel. The cost-related pay-your-own-way lease rate determination of scenario VI would be made in this submodel. Preferential rate or market-rate policies can be explored in the presence of uncertainty regarding the development of channel-hour demand from other public and commercial entities.

Network capacity and lease rates for program distribution throughout the completed network as in scenario VII, or for distribution to particular districts or localities of the emerging network, would be generated within the network-development submodel (itself still under development).

The focus of this submodel would be the time of readiness, and the distribution costs, associated with interconnection links and remote cable plants of an emerging network usable for concurrent public- and commercial-service delivery. A rather extensive data base underpins this submodeling effort.

The data base of the network-development submodel is descriptive of alternative developmental paths for a local cable network in the Lansing extended urbanized area. Development may proceed from the piecemeal contributions of many uncoordinated actors in a kind of patchwork scenario as is suggested in scenario IX. Alternatively, development may proceed from the coordinated efforts of local authorities and cable companies who are guided by an integrated technical design as in scenario VII. The integrated technical design merely insures the maximum sharing of equipment and the minimal need for redundant equipment.

Cable systems will likely span contiguous political jurisdictions whenever development is guided by an integrated technical design. In the patchwork scenario, systems are likely to be contained wholly within political boundaries. If an integrated design is impressed on the area, transaction costs and political costs of coordination are likely to be high, whereas the per unit cost of communication capacity afforded to communities with similar interests who use the network is

likely to be low. In the patchwork scenario transaction and political costs of coordination tend to zero whereas per unit cost of communication capacity is likely to be relatively high.

The emergence of a patchwork or integrated-design configuration ought to be the consequence of a policy decision. Structure which permits the exploration of the patchwork or integrated-design policy alternative would be contained in the network-development submodel. The structure of this submodel would also facilitate exploration of the impact of state policy intended to expedite the readiness of interconnection links.

Research Continuation

The structure of the policy-exploration simulation model described thusfar is sufficient to explore policy consequences with respect to their impact on cost variables only: namely, cost per cable-licensed foster parent, cost per traditionally-licensed foster parent, and the time series of total training and licensing appropriations required to maintain dynamic balance between the population of caretakers and the population to be cared for. Whereas some work has been done on a submodel in which long-term quality of care measures would be related to social-psychological characteristics of the clients, and organizational characteristics of the delivery mode, the bulk of that effort must be the subject of future research. A longer-term priority of future research would be to meld a social-psychological submodel within the overall model structure, thereby allowing the direct exploration of policy-induced impacts on goal attainment as well as costs.

Further development of the submodel structures, programming, debugging, and execution of policy runs must also await a funded period for continuing research on the policy-exploration model.

Advantages of the Model as an Instrument of Policy Exploration

In section II of the report, policies are informed by means of inferences based on the projection of alternative scenarios and on accompanying cost analyses. What are the advantages of policy exploration by means of a simulation model that encompasses the same scenarios and cost relationships?

The model is an implement of investigation and learning that allows planning and policy agencies to focus upon dynamic interactions of policies formulated in different quarters. It encompasses the consequences of interacting policies of corporate entities regarding construction commitments, construction timing, and lease rate determinations for communication capacity on systems or interconnection links; policies of state governments regarding interconnection incentives, guidance of network development, and negotiations for leased-access channel time; and policies of public agencies regarding use of cable communication facilities. It allows exploration of impacts consequent to changes in the time phasing of policies engendered in different quarters.

The policy-exploration computer-simulation model exploits the logical power embodied in the mathematics of classical control systems to generate a balancing appropriations stream in the face of changing needs and supplies, and a range of choices in the deployment of funds to harnessing of alternative delivery technologies. This power simply does not inhere in the segregated projection of alternative scenarios and performance of cost analyses.

As a conceptual instrument, the model serves as an umbrella for a complex of statistically estimated and hypothetical relationships that must cohere to the degree that incongruities are revealed by interactions among the submodels. No such test of logical consistency is at hand when the scenarios and cost analyses are segregated from the superstructure provided by the model.

Being a simulation in time, the very process of model construction forces a more careful examination of time dependencies. In scenario VII, the network is

assumed to be completed by October 1979. In the network-development submodel, readiness factors (political negotiations, materials availability, legal authorizations) would be systematically included in a stochastic theory of aggregated microprocesses invoked to model network development.

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ADDENDUM

DISSEMINATION AND IMPLEMENTATION

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ADDENDUM

DISSEMINATION AND IMPLEMENTATION

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Conferences

A preliminary report of the project and a demonstration videotape were presented at the National Foster Parents Association Conference, April 22-25, 1974 in Spokane, Washington by Wayne Anderson, Program Manager, Foster Care Services, Michigan Department of Social Services and Hazel Woodhouse, area Vice-President of the Michigan Foster Parents Association.

Teresa Sharland, who directed the training programs for the Region 5, Michigan Department of Social Services office, made a presentation at the Michigan Association of Children's Agencies Annual Meeting, May 22, 1974, comparing the classroom training program at Delta College and the cable delivery field experiment. Presentation forms and cost differences were discussed. One-hundred and twenty Michigan professionals involved in foster care recruitment and training programs were in attendance.

Mrs. Sharland has been invited to speak at the Child Welfare League of America, March 1975. She plans to discuss training of foster parents through live classroom sessions and instructional modules on videotape presented via cable television. The conference participants will be professionals involved in child welfare from the eastern half of the United States and Canada.

Implementation

Discussion of an implementation plan was begun October 18, 1974 with the Michigan Department of Social Services staff, after the initial reports had bee distributed. Implications of the research and potential for implementation will be discussed in a meeting with the Deputy Director of the Michigan Department of Social Services on January 13, 1975.

Although no specific program for continued use of the videotaped programs has been established, the availability of the videotapes has spread by word-of-mouth. They have been used, since the field experiment, according to the table on the next page.

USE OF PROGRAM VIDEO TAPES

PLACE	DATE USED	PEOPLE ATTENDING	NO. PROGRAMS USED	WHICH TAPES USED	HOW USED
Saginaw	6/4/74	15	3	Harrison, Schindeling, Cornell	In-service training
	8/7/74	unknown	2	Schindeling, Harrison	Foster parent training
	9/15/74	unknown	2	Schindeling, Harrison	Foster parent training
Huron County	8/15/74	26	2	Schindeling, Harrison	Foster parent training
Clare County	7/7/74	unknown	2	Schindeling, Harrison	Foster parent training & social workers
Wayne State University	5/20/74	45	1	Harrison	Graduate students in socia work
Alpena	9/17/74	6	3	Harrison, Schindeling, Cornell	In-service training
	10/15/74	30	1	Schindeling	Foster parent training
Michigan State University	12/1/74	30	1	Schindeling	Graduate course in Child Development